

HOWARD™



Response To
Alabama Community College System
Request for Bid
NO. ACCS-2022-01

Due:

February 11, 2022 @ 4:00 PM

Presented By

HOWARD™
TECHNOLOGY SOLUTIONS

Our Vision and Strategy

We do IT



Letter of Transmittal

February 4, 2022

Alabama Community College System
Attn: Joint Purchase Agreement Initiative
135 South Union Street Suite #135
Montgomery, AL 36104

RE: Request for Bid #ACCS-2022-01

Dear Alabama Community College System:

Howard Technology Solutions (a division of Howard Industries, Inc., **Federal ID Number 64-0466143** and SPIN 143022153) (Corporation) is pleased to offer a response to your Bid #ACCS-2022-01. Brandey Boyd, Bids/Contract Manager is in charge of compiling the data for this response and is authorized to contractually bind Howard Technology Solutions, a division of Howard Industries, Inc. Brandey has read and understands the bid and is able to provide the services requested. Howard Technology Solutions, with its 40+ years of manufacturing experience, is well versed in the manufacturing and production of technology products and services.

Address: 36 Howard Drive, Ellisville, Mississippi 39437

Brandey: (Phone) 601.399.5831 (Fax) 601.399.5077 (Email) bboyd@howard.com

Contract and price negotiations as well as clarifications and questions should be directed to Howard Technology Solutions Contract Facilitator, Brandey Boyd.

Howard Technology Solutions acknowledges and understands the requirements and conditions governing this bid and accepts the terms and conditions set forth. Howard also acknowledges receipt of any and all addendums pertaining to this request for bid.

Thank You for allowing Howard Technology Solutions to submit a proposal for this project. We look forward to doing business with you.

Sincerely,



David Perkins
Executive Vice President

Evaluation Submission Form

The purpose of this form is to provide a single summary document per submitting vendor that references required materials. This document is intended to assist the Evaluation Committee easily find specific items of information during the evaluation process and to assist participating agency personnel in locating specific vendor information after the award of the bid.

Vendor Contact Information

This will be published for participating agencies to streamline the vendor contact process. Vendors may not have **all** of these departments/positions/titles. Please complete this information as accurately as possible. If the information below changes, please send a revised version of this page to hm-notification@accs.edu

Vendor Name: Howard Technology Solutions

Updated: 2/7/22

Website Address: <http://www.howardcomputers.com>

	Name(s)	Phone Number(s)	E-Mail Address(s)
Primary Contract Executive(s)	Brandey Boyd – Contract Manager	601.399.5831	bboyd@howard.com
Senior Account/Sales Manager(s) (by region if necessary)	Chris Lyman – Sales Mgr. Cole Whitman – Operations Mgr.	601.399.5638	cwhitman@howard.com
Account/Sales Manager(s) (by region if necessary)	Bennett Witcher – Outside Sales Manager Kelly Turner – Inside	601.577.1069 601.399.5047	bwitcher@howard.com kturner@howard.com
Technical Support	Darrell McCullum – Technical Support Mgr.	601.399.5089 1.888.323.3151	dmccullum@howard.com

BID INFORMATION INDEX

Please complete the following form to assist the Evaluation Committee in finding specific information as related to **your** bid response.

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36 Howard Drive • Ellisville, MS 39437
P.O. Box 1590 • Laurel, MS 39441



888.912.3151 general • 601.399.5077 fax
888.323.3151 technical support

Response to General Requirements And Specifications

GENERAL REQUIREMENTS AND SPECIFICATIONS

3.1 Acceptance of Conditions Governing the Procurement

Vendor must indicate their acceptance of the Conditions Governing the Procurement section in the letter of transmittal. Submission of a bid constitutes acceptance of the Evaluation Factors contained in this RFB. Vendor must also include ISO 9001 certification as required by State Code governing Joint Purchase Agreements. According to Alabama law, any companies or contractors whose affiliates, subdivisions, subsidiaries, or departments have ISO 9001 certification can bid on the information technology to be jointly purchased by educational institutions. ISO 9001 certification is only required for vendors who are providing hardware.

Howard Technology Solutions acknowledges and complies. Please see our ISO certificates behind table labeled "ISO Certifications".

3.2 Incurring Cost

Any cost incurred by the vendor in preparation, transmittal, and presentation of any material submitted in response to this RFB shall be borne solely by the vendor.

Howard Technology Solutions acknowledges and complies.

3.3 Vendor Responsibility

The selected vendor(s) shall be solely responsible for fulfillment of the responsibilities under the terms and conditions of the contract. The procuring entities will issue purchase orders and make payments to only the named vendor(s).

Howard Technology Solutions acknowledges and complies.

3.4 Serving Sub-Contractors

The System recognizes the fact that the potential vendors have different business models for the delivery of support services. Whereas one potential vendor may provide support services through a wholly owned subsidiary, another may provide support services through a local business partner, certified education partner or qualified organization herein referred to as a servicing subcontractor. Therefore, vendors may propose the use of servicing subcontractors for the performance of local marketing, maintenance or technical support services in accordance with the terms and conditions of the contract. Servicing subcontractors may not directly accept purchase orders or payments for products or services from procuring entities under the terms and conditions of the contract.

Howard Technology Solutions acknowledges and complies.

3.5 Amended Bids

A vendor may submit an amended bid before the deadline for receipt of bids. Such amended bids must be complete replacements for a previously submitted bid and must be clearly identified as such in the transmittal letter. The Evaluation Committee will not merge, collate, or assemble bid materials.

Howard Technology Solutions acknowledges and complies.

3.6 Vendors' Rights to Withdraw Bid

Vendors will be allowed to withdraw their bids at any time prior to the deadline for receipt of bids. The vendor must submit a written withdrawal request signed by the vendor's duly authorized representative addressed to the representative listed above.

The right is reserved to waive informalities, select alternatives, and reject any or all responses, in the event such appears to be in the best interest of the System.

Howard Technology Solutions acknowledges and complies.

3.7 Bid Offer Firm

Responses to this RFB, including prices, will be considered firm for ninety (90) days after the due date for receipt of bids.

Howard Technology Solutions acknowledges and complies.

3.8 Disclosure of Bid Contents

The bids will be kept confidential until the contracts are awarded. At that time, all bids and documents pertaining to the bids will be open to the public. All responses become a matter of public record at award. The System accepts no responsibility for maintaining confidentiality of any information submitted with any response whether labeled confidential or not.

Howard Technology Solutions acknowledges and complies.

3.9 No Obligation

This RFB in no manner obligates Alabama Community College System or any authorized entity to the lease or purchase of any products or services offered until a contract is awarded and vendor receives a valid purchase order from an authorized procuring entity.

The System has the right to cancel any contract, for cause, including, but not limited to, the following: (1) failure to deliver within the terms of contract; (2) failure of the product or service to meet specifications, conform to sample quality, or to be delivered in good condition; (3) misrepresentation by the vendor, (4) fraud, collusion, conspiracy, or other unlawful means of obtaining any contract with the state; (5) conflict of contract provisions with constitutional or statutory provisions of state or federal law; and (6) any other breach of contract.

Termination - the System reserves the right, for its convenience and without cause or penalty, to terminate any agreement with 30 days written notice.

Howard Technology Solutions acknowledges and complies.

3.10 Legal Review

The System requires that all vendors agree to be bound by the General Requirements contained in this RFB.

Any vendor concerns must be promptly brought to the attention of Alabama Community College System.

Howard Technology Solutions acknowledges and complies.

3.11 Governing Law

The vendor shall observe, perform and comply with or require compliance with all federal, state, and local laws, ordinances, rules and regulations and all amendments thereto which in any manner may affect the operation of vendor's activities undertaken pursuant to this Agreement. The vendor shall also comply with all state and local building, fire, health, zoning laws, codes and/or regulations that affect or that are applicable to vendor's activities and operations hereunder. This RFB and the final agreement shall be governed and construed in accordance with the laws of the State of Alabama without giving effect to any choice-or-conflict-of-laws, provision, or rules (whether of the State of Alabama or any other jurisdiction) that would cause the application of the laws of any jurisdiction other than those of the State of Alabama.

Howard Technology Solutions acknowledges and complies.

3.12 Basis for Bid

Only information supplied by the System in writing or in this RFB should be used as the basis for the preparation of vendor responses.

Howard Technology Solutions acknowledges and complies.

3.13 Agreement Terms and Conditions

The agreement between the System and the vendor will follow the format specified and contain the terms and conditions outlined in this request. However, Alabama Community College System reserves the right to negotiate with a successful vendor provision in addition to those contained in this RFB. This RFB, as revised and/or supplemented, and the successful vendor's response will be incorporated into and become part of the agreement.

Vendors are encouraged to submit specific alternate language to the terms and conditions, that vendor believes would enhance the efficient administration of the agreement or result in lower product prices or both. The System may or may not accept the alternative language. General references to the vendor's terms and conditions or attempts at complete substitutions are not acceptable and will result in disqualification of the vendor's response.

Howard Technology Solutions acknowledges and complies.

3.14 Vendor Qualifications

The Evaluation Committee may make such investigations as necessary to determine the ability of the vendor to adhere to the requirements specified within the RFB. The Evaluation Committee will reject the bid of any vendor who is not a responsible bidder or fails to submit a responsive offer as defined.

Howard Technology Solutions acknowledges and complies.

3.15 Change in Vendor Representatives

The System reserves the right to require a change in vendor representatives if the assigned representatives are not meeting its needs adequately.

Howard Technology Solutions acknowledges and complies.

3.16 Equipment and Services Schedules

The vendor may offer only those products and services that are included on the Equipment and Services Schedule (ESS). Vendors shall keep the schedule current and correct on an Internet website maintained by the vendor and shall reflect changes in technology in accordance with the terms and conditions of the contract.

Howard Technology Solutions acknowledges and complies.

3.17 Benefit of Cost Reduction

The System is to be given the benefit of any reduction in price below the quoted price during the term of this contract. Examples include but are not limited to, manufacturer price reductions and special promotional offerings.

Howard Technology Solutions acknowledges and complies.

3.18 Bid Terms

By submitting a response, the vendor agrees that this contract is to be governed by the terms and conditions set forth in the bid. Any exceptions to the specifications must be clearly identified in the last section of the vendor's response.

Howard Technology Solutions acknowledges and complies.

3.19 Fiscal Funding

The continuation of the contract is contingent upon the appropriation of funds to fulfill the requirements of the contract by the legislature. If the legislature fails to appropriate sufficient monies to provide the continuation of a contract, the contract shall terminate on the date of the beginning of the first fiscal year for which funds are not appropriated.

Howard Technology Solutions acknowledges and complies.

3.20 Insurance

The vendor shall bear the full and complete responsibility for all risk of damage or loss of equipment, products, or money resulting from any cause whatsoever and shall not penalize the System for any losses incurred in association with this agreement. Any insurance policy or policies shall cover the entire travel service operation at the System including all areas that may in the future be placed under the control or use of the vendor. The vendor shall maintain, during the life of this contract, the following minimum insurance:

KIND OF INSURANCE	MINIMUM LIMITS OF LIABILITY
Worker's Compensation	Statutory — Alabama
Employer's Liability	\$2,000,000 (each employee, each accident and policy limit)
Commercial General Liability:	
Each Occurrence	\$2,000,000
Personal and Advertising Injury	\$2,000,000
Products/Completed Operations	\$2,000,000
General Aggregate	\$3,000,000
Automobile Liability	\$2,000,000 each accident — combined single limit

These policies shall contain a thirty- (30) day written notice to the System before cancellation, reduction or other modification of any kind to the required coverage.

The vendor, at its cost, must provide acceptable evidence of compliance with the worker's compensation insurance requirements of the State of Alabama. In the event the vendor fails to maintain and keep in force, all of the insurance and Worker's Compensation coverage listed above, the System shall have the right to terminate this contract. The System and vendor shall each be listed as the named insured in said policy (ies) so that each is independently protected to the face amount of the policy.

Upon notification of award and prior to issuance of contract, the vendor shall provide the System with certification of insurance with the required kinds of insurance and minimum liabilities specified, issued by an insurance company licensed to do business in the State of Alabama and carrying an AM Best rating of A- or better, signed by an authorized agent. In the event of cancellation, material change or intent not to renew any of the insurance requirements specified, thirty (30) days written notice shall be given to the System by the party initiating any revision.

Howard Technology Solutions acknowledges and complies.

3.21 New Products

Unless specifically called for in this request, all products for purchase must be new, never previously used, and the current model and/or packaging. No remanufactured, demonstrator, used, or irregular product will be considered for purchase unless otherwise specified in the request. The manufacturer's standard warranty will apply unless otherwise specified in the request. All equipment should be supplied complete, ready to be installed, including all cabling and connectors where applicable.

Howard Technology Solutions acknowledges and complies.

SPECIFICATIONS

This section contains specifications and relevant information vendors should use for the preparation of their responses.

Vendors should respond as described to each specification. The responses along with the required supporting material will be evaluated and awarded points accordingly.

3.22 Product and Services Delivery Overview

Vendors must describe their ability to provide professional services, technology equipment including related products and support services to the System and the various authorized entities. The response to this requirement should, at a minimum, include a map with an indication of the locations where products may be delivered plus the number and type of support personnel or other resources that may be employed to service procuring entity purchase orders (a very basic example map for a fictitious company is provided in Appendix B). The narrative in response to this specification should include, at a minimum, a general overview of the proposed services and an overview of how the services are to be provided in the locations indicated.

Howard Technology Solutions is pleased to present the attached proposal to the Alabama Community College System (ACCS). We have worked well with and look forward to an even greater relationship with ACCS and all of its member agencies and institutions. Howard manufactures its own line of desktops, notebooks, and servers and have partnered with numerous other industry-leaders such as Fujitsu, FrontRow, Extron, Crestron, Polycom, Exagrid, Toshiba, Mimio, Extreme, Xirrus, and many more in order to provide our customers with complete technology solutions according to their needs. Howard also offers a complete line of professional services to our customers including, but not limited to training and installation.

Howard Technology Solutions utilizes UPS or LTL carriers for shipping purposes. Howard Technology Solutions' parent company, Howard Industries, Inc., has a wholly-owned subsidiary, Howard Transportation, which is a trucking/brokerage firm that assists with LTL deliveries on large orders. Using these avenues, Howard is able to deliver our products to any address in the State of Alabama. Please see that the map below is completely red-filled indicating our ability to deliver to any locale in Alabama. Please also see tab labeled "Sales, Service, and Distribution Map".



Howard Technology Solutions is located in Ellisville, Mississippi and houses all executive staff, the engineering and design staff, network services staff, customer and telephone support staff, and production facilities. Our close proximity to the State of Alabama means that all of these personnel are available to assist ACS member personnel with any issues that may arise.

Vendors must thoroughly describe their procedures for resolving customer problems and complaints including timelines and escalation measures.

ACCS members have two main avenues to choose from when a complaint or issue needs to be resolved. Issues can be divided into two categories: technical and non-technical. Nontechnical issues may be addressed by calling your dedicated Howard ACCS Representative at our toll-free number 888.912.3151. Your account representative can assist any member of ACCS with issues such as invoicing, billing, order status, delivery changes and/or instructions, or any other issue non-technical related. Your ACCS account representative can handle all problems of this nature on their own. If a problem occurs that they cannot immediately resolve to the customer's satisfaction, the problem will then be taken to Josh Jefcoat, Vice President of Educational Sales. If he is unable to resolve the issue, it will be taken directly to our Executive Vice President, President, or CEO for resolution. Most issues of this nature can be resolved in a matter of minutes or, in extreme cases, 24 hours.

If issues of a technical nature should arise, ACCS has direct access to our Customer/Technical Support Department. This department may be reached via our toll-free number 888.323.3151 or website www.howardcomputers.com. Please find our problem resolution and escalation procedures for our Customer/Technical Support Department below:

Howard Technology Solutions has established clear guidelines within the Customer Service Department regarding problem escalation. A description of the problem escalation rules and three tiers of Howard Technology Solutions' technical support organizations are provided below:

Problem Escalation

1. Customer Service Technician is unable to resolve customer's issue/problem on third attempt. (An attempt is defined as phone conversation, email instructions, and/or service technician on-site.)
2. Customer expresses dissatisfaction with service being provided by the Howard Technology Solutions' Customer Service Technician.
3. Customer becomes agitated and/or angry with the Customer Service Technician.
4. Customer Service Technician requires additional assistance in resolving customer's issue/problem.

Tiers/Level of Support

Tier One Customer Service Technicians have a minimum of one year customer service experience and are familiar with all operating system environments and standard office application products. They are familiar with basic to mid-level diagnostic procedures and troubleshooting techniques for hardware and software.

Tier Two Customer Service Technicians have a minimum of two years of customer service experience and are familiar with all operating system environments and advanced office application products. They are familiar with advanced diagnostic procedures and troubleshooting techniques for hardware and software.

Tier Three Customer Service Technicians are staffed by Howard Technology Solutions' Engineering Department. These engineers and technicians provide the Customer Service Department with a high degree of expertise, experience, and educational background. The Engineering Department gives ready access to Microsoft Certified Systems Engineers (MCSE), Certified Novell Engineers (CNE), COMPTIA A+ Technicians, and electrical and computer engineers.

Howard Technology Solutions has an outstanding initial call response time. On average, Howard Technology Solutions Customer Service Technicians answer an incoming call within forty-five (45) seconds. A "live" technician answers 89% of calls to the Howard Technology Solutions Customer Service toll free line. This is far better than the industry average, as evidenced by the chart below:

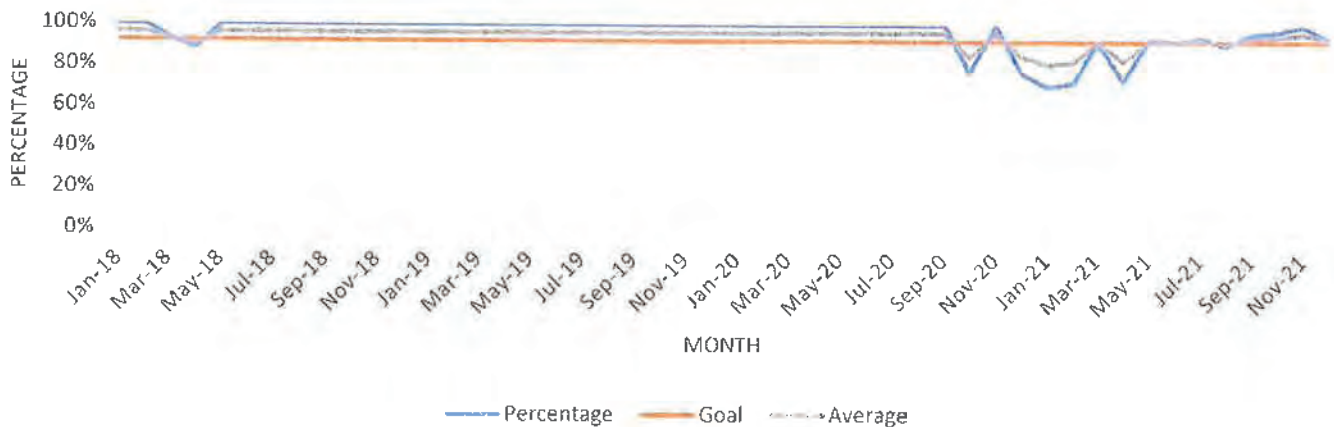
Company	Howard	Dell	HP	IBM
Average time on hold (min:sec)	1:00	9:54	10:18	11:18

The not-to-exceed time established by Howard is one (1) minute. Through Howard Technology Solutions' toll free phone support, 7x24x365, our customers have the ability to make one phone call to initiate the warranty service process. Upon receipt of an initial customer call, a Tier One Customer Service Technician will first attempt to diagnose the issue and obtain a resolution within the initial phone call. Problem resolution for customer phone calls is typically between five (5) minutes and one (1) hour depending on the type of problem and level of customer's computer knowledge. If an on-site service call is required, which is typically next business day, the service representative will consult with the Customer Support Manager to determine the most efficient means of supporting that customer. All serviceable parts (new or used) are shipped via UPS next business day delivery service. Within one hour of confirming on-site is needed, a support representative will be contacted to provide the next business day on-site support. In all areas and instances where it is in the customer's best interest, Howard will utilize one of our partners, located within the customer's geographical area, to expedite the next business day on-site service. Under special circumstances, if the problem is large-scale and requires the attention of a direct Howard employee, a direct Howard employee will be contacted and dispatched, regardless of the geographical area, instead of utilizing one of our partners or contract support representatives.

Vendors must submit customer satisfaction statistics or survey results concerning the quality of the products and/or services offered.

Our Customer Service personnel use the Howard Technology Solutions survey randomly. This survey is used bi-monthly. As a means to gauge our customer's perception of Howard products and services, we based all of the questions on customer satisfaction. Please see results of survey below. This chart identifies the total percentage of customers who ranked us as "4 – highest" regarding the question "Rate Your Overall Howard Experience" from 1 to 4 with 4 being the highest level of satisfaction. Howard strives to maintain a satisfaction ranking of 92%. This chart also shows where we rank percentage wise in reference to our 92% goal along with our average ranking for the months January 2018 – December 2021.

Howard Technology Solutions:
Company Quality Objective vs Overall Customer Satisfaction
% Responses Received as 4 - "Rate Your Overall Howard Experience
from 1 to 4"
January 2018 - December 2021



Vendors must thoroughly describe their ability to provide value added technical services including installation, training or directly related optional services and the geographic area where the services may be provided. Vendors should provide a map with an indication of the locations where each type of value-added service may be provided.

Howard Technology Solutions' Value Added Services offerings are broken down into three distinct categories:

1. ***Network Consulting & Integration Services*** consist of services that revolve around Network infrastructure development and implementation and are typically project driven.
2. ***Technical Management Services*** consist of support services that revolve around ongoing day to day support of technology and typically have a contracted time frame.
3. ***Product Procurement Services*** consist of the procurement, configuration and delivery of computer equipment.

Please see below for a detailed listing of products and services provided as value added services by Howard Technology Solutions.

- **Systems Integration and Consulting Services**
- **Network Design, Implementation, Management and Support**
 - LAN and WAN
- **Network and Data Security Review**
- **Network Assessment**
- **Wireless Network Solutions**
- **Structured Cabling**
- **Customized Training Programs**
- **Application Development**
- **Internet/Intranet Development**
- **Web Site Hosting and Management**
- **Hardware Sales, Service and Support**
- **Software Sales, Service and Support**
- **Service Level Agreements — Contract for Services**
 - Regularly Scheduled Preventative Maintenance
 - Full-time, On-site Technicians and/or Engineers
 - Part-time, On-site Technicians and/or Engineers
 - As-needed, On-site Technicians and/or Engineers

All services discussed above are available throughout the continental United States. A few key highlights of our value-added services can be found below:

1. **HTPP**

Howard Technology Solutions realizes many organizations handle basic hardware service and support in one of two ways: they make a significant investment in establishing and maintaining a group of local service providers, or they use their own internal support staff. For this reason, we have developed the Howard Technology Partnership Program (HTPP) so we can satisfy either option by facilitating timely, cost effective, **quality service** in conjunction with our high standards of customer satisfaction. Please see tab labeled "HTPP" for further details of this program.

2. **Custom Imaging**

Because we understand the real-world demands many organizations face, we offer free custom imaging to make life easier for our customers purchasing desktops, notebooks, and chromebooks. It is just another commitment to our customers and their individual needs. Please see tab labeled "Custom Imaging" for more information.

3. **Customized Box Labeling and Bar-Coding**

4. **Training and Installation**

The map below is again red-filled in its entirety as Howard is able to provide services to the entire state of Alabama. Please also see tab labeled "Sales, Services, and Distribution Map."



3.23 Reporting

Vendors must agree to provide quarterly utilization reports to the System based upon the schedule and minimum content as described in this request. Quarterly reports must be submitted to The System Office to JPA-Notification@accs.edu. The electronic copy must be in the form of a PDF file. Vendors must describe their ability and commitment to meet this requirement and include a sample quarterly report with the bid response. The required report must be compiled and forwarded to the Joint Purchase Agreement Initiative Administrator within two weeks of the end of each quarter. Vendors may count quarters either from the calendar (i.e., the end of March will be the end of the first quarter) or from the time we awarded you the bid (i.e., May 1 will be the end of the first quarter). An example of the required reporting format is included in Appendix C. Failure to provide the required report in the specified format could result in removal from the contract.

Vendors are encouraged to describe and include additional sample reports. Vendors are encouraged to describe other reporting capabilities such as electronic delivery of reports or direct access to Internet or other databases that may be used to administer the agreements or support marketing.

Howard Technology Solutions agrees to provide quarterly utilization reports to the Agreement Administrator on or before the following dates:

January 01 - March 31	April 15
April 01 – June 30	July 15
July 01 – September 30	October 15
October 01 – December 31	January 15

The quarterly utilization report will be submitted to the Agreement Administrator via an email attachment in the form of a PDF file per stated guidelines. The quarterly utilization report will include the net sales for the reporting period, the purchasing entity's name, item description, and the state of the purchasing entity. Howard Technology Solutions agrees to include all Reseller Agent sales in this report. In addition, the report will include a supplemental returns report that will include all systems returned to Howard Technology Solutions within the reporting period.

In a continuing effort to provide the best possible experience, Howard Technology Solutions will provide a dedicated ACCS admin website which will allow members to login and download the quarterly reports on or before the reporting date deadline. As an added value, the site will include the same report in Excel format which allows for filtering the report by a variety of data including, but not limited to, purchasing entity name, PO information, state, and customer type.

Howard Technology Solutions will have the ACCS admin site operational and login credentials sent to the appropriate reporting party within sixty [60] days of the contract start date.

Admin site will be available at the following URL, to be fully functional within sixty [60] days of contract start date: <http://www.howardcomputers.com/State/AL/Admin>

Howard Technology Solutions provides reports to the state entities based on agreed upon schedules. Typically these reports are sent via email quarterly. Please find sample copies of some of our quarterly reports in the section labeled "Sample Reports."

3.24 Electronic Commerce

Vendors must describe their ability to provide and maintain, at a minimum, an Internet website that contains the complete ESS as well as product specifications and options. Vendors are encouraged to describe an existing capability or commitment to implement a website that would provide procuring entities guidance and assistance with product selection, purchase order tracking, reporting or other relevant capability. The ability or commitment to accept and process purchase orders electronically should be thoroughly described. Internet URL's may be provided which reference sites that demonstrate the desired functionality.

Howard Technology Solutions agrees that our website for ACCS, located at the below URL, will be available for immediate usage barring any scheduled maintenance upgrades. Notice of such upgrades will be sent at least twenty-four [24] hours in advance of the outage and will only be performed during the early morning hours (i.e. 12AM to 2AM Central).

The Howard Technology Solutions/ACCS website will include a full ESS of our agreed upon product offering, an online configurator to configure said products, and an online quote generation utility to save quotes for later retrieval, and an online ordering system for immediate processing of all items. In addition, all contact information, service agreements, order tracking, and product specifications will be available on the website within sixty [60] days of contract start date.

Pricing catalog is accessible at the following URL:

http://www.howardcomputers.com/state/al/admin/ACCS_Catalog_Bid-020722.xlsx

We will provide the following sites to ACCS, to be fully operational within 60 [days] of contract start date: <http://www.howardcomputers.com/State/AL/Admin>

Administration Site:

This site will allow ACCS members to review dynamic and static reports, track orders by company, order number, PO number, and state, review quote-to-order ratios based on type of system, state, and company, and the ability to review tracking information on orders.

Purchasing Site:

This site will allow ACCS members to fully configure systems, to quote and order the system via credit card or purchase order, and to track the status of the order once placed.

3.25 Breadth of Offering

Vendors must, at a minimum, offer products or services in at least one of the following categories:

- Client Computers (Workstations, Desktops, Terminals, Laptops, Tablet, Notebook, Handheld Devices)
- Servers
- Printers
- Monitors
- Storage
- Networking Equipment
- Audio and Video Conferencing Equipment
- Multimedia Hardware
- VOIP/Unified Communications Solutions
- Video Surveillance Solutions
- Key and Access Control Equipment
- Software
- Professional Services
- Other

Vendors must provide a comprehensive list of the models or variations available in each of the following categories for which a vendor offers products:

- Client Computers (Workstations, Desktops, Terminals, Laptops, Tablet, Notebook, Handheld Devices)
- Servers
- Printers
- Monitors
- Storage
- Networking Equipment
- Audio and Video Conferencing Equipment
- Multimedia Hardware
- VOIP/Unified Communications Solutions
- Video Surveillance Solutions
- Key and Access Control Equipment
- Software
- Other

The narrative that is submitted in support of the list should provide the Evaluation Committee with a clear indication of the breadth of the product line flexibility and performance.

**Breadth of Offering
Howard Technology Solutions
Computing Equipment**

Servers

Howard Technology Solutions servers allow organizations the flexibility, scalability, and affordability needed by today's computing professionals. By combining great performance with a wide selection of options, Howard Technology Solutions can offer a server solution to fit any size workload, system, or budget. Complete customization (from entry level single processor tower to an enterprise dual processor rack-mount based on Intel Xeon processors) is available on all Howard servers. Howard Technology Solutions' servers are available in three basic categories: Entry, Mainstream, and Performance. Not all of these categories are within ACCS's requirements; however, in order to provide a full synopsis of our breadth of offering, we have included all categories of servers that Howard offers.

Models

Entry – SP1104 (rack), SP4104 (tower)

Mainstream – SP280 (rack), SP480 (tower)

Performance – SP3-2208 (rack), SP3-4208 (tower)

A specification sheet is being provided for reference. This includes type of processor, maximum amount of memory, RAID capabilities, maximum number of hard drives, as well as hot swap drive and power supply capabilities. Please see tab labeled "Howard Specs" for full comparison materials.

Howard Technology Solutions also offers servers from the following third party manufacturers:

Dell: all models

Fujitsu: all models

HP: all models

Lenovo: all models

HVE: all models

**Breadth of Offering
Howard Technology Solutions
Computing Equipment**

Workstations

A synopsis of Howard's performance workstation models follows. It is then followed by a synopsis of our desktop, laptop, and tablet categories, which also fall under the workstation heading within this ACCS RPF.

Howard Technology Solutions performance workstations are designed by and for the professional who requires the absolute best of everything. From high end graphics to blistering processor speeds, Howard workstations are designed to handle the work load. Utilizing cutting edge technology from Intel, Howard performance workstations are highly engineered for power-hungry, graphic-intense applications and today's media-rich content.

Performance Workstations:

WX2900
WX590
WX490

Engineering Workstations:

SW4108
SW4104
IQ-W

A specification sheet is being provided for reference. This includes type of processor with maximum speed, front side bus, type of memory, maximum amount of hard drive space, number of expansion slots, number of ports, type of video, type of audio, type of network adapter, and OS available. Please see tab labeled "Howard Specs" for full comparison materials.

Howard Technology Solutions also offers workstations from the following third party manufacturers:

Acer: all models

Dell: all models

HP: all models

Lenovo: all models

**Breadth of Offering
Howard Technology Solutions
Computing Equipment**

Desktops

Howard Technology Solutions offers a comprehensive line of fully customizable “Built-to-Order” desktop systems. A wide range of options is available on each model. Each model carries its own set of unique features ranging from chipsets, graphics, and LAN options as well as chassis size and storage options. Howard offers systems built on both Intel and AMD platforms with the latest technology available. By utilizing industry standard, an open non-proprietary standard, Howard Technology Solutions is not only able to offer Built-to-Order systems, but also Built-to-Specifications. While offering a wide range of options in each of the major sub-categories in a desktop, Howard Technology Solutions will also work with a customer who might require a particular brand or even a specific model of component. We are committed to providing desktop systems which meet or exceed customer requirements and expectations.

Value Systems

Howard Technology Solutions offers affordable technology solutions for standalone or basic network environments. This series is perfect for word processing, internet activity, software applications, and much more.

Models:
H510Mini

Mainstream Systems

Utilizing Intel and AMD processors, we offer the optimal blend of performance and flexibility designed to grow with the organization’s technology needs.

Models:
H410MKB
H510MKB
H510LPKB
IQ-K
IQ-N1

Top-tier Systems

Built on Intel branded motherboards with Intel chipsets and processors, our top-tier models comprise our most stable and feature-rich systems.

Models:
Q470MKB
Mayhem Series*
Nemesis Series*

***Mayhem and Nemesis series are both gaming systems which can be converted to business applications.**

A specification sheet has been provided for reference. This includes type of processor with maximum speed, front side bus, type of memory, maximum amount of hard drive space, number of expansion slots, number of ports, type of video, type of audio, type of network adapter, and OS available. Please see tab labeled "Howard Specs" for full comparison materials.

Howard Technology Solutions also offers a variety of third party desktops from the following manufacturers:

Acer: all models

Dell: all models

HP: all models

Lenovo: all models

**Breadth of Offering
Howard Technology Solutions
Computing Equipment**

Laptops

Portability, affordability, performance, and today's latest technology are all combined into a line of laptops that continue to meet the growing needs of all organizations. Laptops from Howard Technology Solutions offer everything from 11.6" convertible to the latest Intel Core Series offerings to an affordable rugged tablet.

Value Models:

N1X

Mainstream Models:

A01

Performance Models:

HX-16

A specification sheet has been included for reference. This includes type of processor with maximum speed, spindles, maximum amount of memory, and maximum amount of hard drive space, display size, optical devices offered, connectivity options, and OS available. Please see tab labeled "Howard Specs" for full comparison materials.

Howard Technology Solutions also offers a variety of third party laptops from the following manufacturers:

Acer: all models

Asus: all models

Dell: all models

Fujitsu: all models

HP: all models

Lenovo: all models

Samsung: all models

Toshiba: all models

**Breadth of Offering
Howard Technology Solutions
Computing Equipment**

Tablet PCs

Howard Technology Solutions has partnered with a wide range of manufacturers to offer a variety of tablet PCs for any budget and any organizational need. We offer third party tablet PCs from the following manufacturers:

Acer: all models

Asus: all models

Dell: all models

Fujitsu: all models

HP: all models

Lenovo: all models

Samsung: all models

Toshiba: all models

Breadth of Offering
Howard Technology Solutions
Computing Equipment

Printers

Howard Technology Solutions can provide access to hundreds of printers. We have in place relations with top-level manufacturers and distributors that allow us to offer organizations a complete line of products it needs, even in today's changing market. These include high speed printers, medium speed printers, desktop printers, multifunction high speed printers, multifunction medium speed printers, and multifunction desktop printers. Please see below listing of all manufacturers in each category of printers that Howard Technology Solutions is able to provide.

Brother
Canon
Dell
Epson
HP
Konica
Lexmark
OKI
Xerox

Breadth of Offering
Howard Technology Solutions
Computing Equipment

Storage Solutions

Howard Technology Solutions has in place relationships with top-level manufacturers and distributors that allow it to offer organizations a full range of storage products to meet any network need. Please see below for list of manufacturers.

Buffalo: all models

Dell: all models

EMC: all models

HVE: all models

Overland: all models

Tandberg: all models

Western Digital: all models

Breadth of Offering
Howard Technology Solutions

Video Conferencing

Howard Technology Solutions is pleased to offer video conferencing systems from industry-leading partners. We offer a complete line to meet all of your video conferencing needs in this changing market.

Cisco: all models

Crestron: all models

Lifesize: all models

MashMe: all models

Polycom: all models

Zoom: all models

**Breadth of Offering
Howard Technology Solutions**

Multimedia Instructional Packages

Howard Technology Solutions is pleased to offer our customers Multimedia Instructional Packages (bundles) through the ACCS contract. We have a wide variety of manufacturers that we can provide in customized bundles to meet each customer's unique needs. Please find our Multimedia Instruction Packages offerings below.

Workstation and Projectors

Howard Technology Solutions can provide our customers with workstation and projector bundles to meet their needs. Our top-of-the-line desktops can be bundled with one of our many projector lines offered such as: BenQ, Boxlight, Casio, Christie, Epson, Hitachi, Infocus, NEC, Panasonic, Sony, and ViewSonic.

Laptop, Projector, and Whiteboard Package

Howard Technology Solutions can provide our customers with laptop, projector, and whiteboard packages to meet their needs. Our top-of-the-line Howard laptop line as well as other leading brands such as Dell, Lenovo, and Dell can be bundled with our extensive projector offerings and interactive whiteboard offerings to create a custom bundle for our customers.

Please find the manufacturers for these bundled solutions listed below:

Projectors: BenQ, Boxlight, Casio, Christie, Epson, Hitachi, Infocus, NEC, Panasonic, Sony, ViewSonic

Whiteboard: Mimio, Newline

Howard Technology Solutions also offers 21st Century Classroom Solutions for our customers who are made up of the most advanced technology on the market today. The technology in these classrooms allows teachers and students to achieve the maximum learning experience. These classrooms are made up of products from the following manufacturers: Howard, Mimio, Elmo, HP (or printer of customer's choice), and FrontRow. These solutions can also be tailored to meet each individual customer's needs.

**Breadth of Offering
Howard Technology Solutions**

Monitors

Howard Technology Solutions can give you access to hundreds of monitors. We have relationships in place with top-level manufacturers and distributors that allow it to offer organizations a complete line of products it needs.

Manufacturers:

LG: all models

NEC: all models

Panasonic: all models

Planar: all models

Samsung: all models

Sharp: all models

Sony: all models

ViewSonic: all models

**Breadth of Offering
Howard Technology Solutions**

Local Area Network

Howard Technology Solutions offers a wide breadth of LAN equipment and services. Howard Technology Solutions provides network consulting, design, engineering, implementation, maintenance and support. Howard Technology Solutions has experience with all types of network infrastructures — Cat5e, Cat6, Fiber, and Wireless.

Below is a summarized list of proposed LAN equipment and software:

Bridges, Routers, Hubs, Switches, Access Points, Wireless Access Points and more

Manufacturers: (All Models)

ADC, Adtran, Alcatel, Allied Telesis, Alvarion, ABL, APC, Asus, Belkin, Brocade, Cisco, 3Com, CNet, Dlink, Digiconnect, Enterasys, Hawking, HP, EMC, Extreme, Kentrox, Kramer, Linksys, Lantronix, NComputing, Netgear, Netopia, Nortel, Mobile Edge, Panasonic, QLogic, SMC, Startech, MiLAN, TrendNet, USRobotics, Xerox, Xirrus, Zoom, and ZyXEL, Aerohive, Ruckus, Aruba, HPE, Tripplite.

Other:

Cat5e and Cat6 cabling, Fiber — SM and MM, Wireless NICs, NICs, and Firewalls

**Breadth of Offering
Howard Technology Solutions**

Digital Projectors

Howard Technology Solutions is pleased to offer digital projectors from many different manufacturers. We have the capabilities to provide organizations with the type of projection device it may need.

Manufacturer (all models):

BenQ: all models

Boxlight: all models

Casio: all models

Christie: all models

Epson: all models

Hitachi: all models

Infocus: all models

NEC: all models

Panasonic: all models

Sony: all models

ViewSonic: all models

Breadth of Offering
Howard Technology Solutions

Peripherals

Howard Technology Solutions can give ACCS members access to nearly 90,000 kinds of peripherals, accessories, and software products including, but not limited to, keyboards, memory, mice, cameras, docking stations, UPS, power supplies, cables, and much more. Howard Technology Solutions has in place relationship with top-level manufacturers and distributors which allows us to offer organizations a complete line of products it needs.

Please see full listing in the ESS.

**Breadth of Offering
Howard Technology Solutions**

Networking Equipment

Howard Technology Solutions offers a wide range of networking equipment from a variety of vendor partners. We are pleased to announce our partnership with Extreme Networks, a leading provider of end-to-end networking solution for enterprise, data center, and service provider customers. Providing a combined end-to-end solution from the IoT edge to the cloud, Extreme's solutions include wired and wireless network infrastructure equipment and an extensive portfolio of software applications that deliver AI-enhanced access control, network, and application analytics, as well as network management. All can be managed, assessed, and controlled from a single pane of glass on premises or from the cloud. Please see below list of models.

ExtremeWirelessTM

AP4000
AP5010
AP302W
AP305C/CX
AP410C
AP510C/CX
AP460C

Wireless Appliances

E1120
E2122
E3120

Virtual Platforms

VE6120 (VMWare) / VE6120H (Hyper-V)
V36125 (VMWare)

Wireless Security

Extreme AirDefense ®

ExtremeSwitchingTM

5520 Series
5420 Series
5320 Series

Stackable Switches

X465
X460-G2
X450-G2
X440-GX
X435
X870
X695
X690
X670-G2
X590
V400 / V300

Fixed Configuration and Modulate Switches

VSP 600
VSP 8400
VSP 7400
VSP 4900

Data Center Switches

8720
8520
SLX 9850
SLX 9850
SLX 9740
SLX 9640
SLX 9540
SLX 9250
SLX 9150

ExtremeApplicationsTM

Cloud Management – ExtremeCloudTM

In addition, Extreme offers the following added value services – technical assistance options including online community interaction with The Hub, self-service access searchable in Extreme's KnowledgeBase, and one-on-one interaction with GTAC assisted support, maintenance services such as hardware replacement services, onsite services, return and replacement services, software and GTAC services, software support services, premier services, managed services, ExtremeWorks Monitoring PLUS services, and ExtremeWorks Response PLUS services, professional services, and training services.

Howard Technology Solutions also offers a wide range of networking infrastructure solutions from today's industry leaders. We offer backup and replication solutions, bandwidth management, content filtering solutions, continuity solutions, cooling, LAN, storage, and power protection products, disaster recovery solutions, email archiving solutions, hyperconverged solutions, network access control, network infrastructure, security solutions, VOIP solutions, and wireless solutions. Below are some of the brands we offer in regards to our networking infrastructure solutions.

All models:

Barracuda, CommVault, Cybernetics, Exagrid, HPE, Quest, Rubrik, Spectra Logic, Unitrends, Veeam, VMware, Zerto, Allot, Radware, ContentKeeper, ESET, FamilyZone, Fortinet, iBoss, Lightspeed Systems, Palo Alto, Securlly, Cisco, APC, Cyberpower, Eaton, Orion, Schneider Electric, SurgeX, Tripp Lite, Dell EMC, Arcmail, HVE, NetApp, Nutanix, Aruba, Extreme, Fortinet, Impulse, Broadcom, Ruckus, BitDefender, Juniper, McAfee, Panda Security, Sophos, Symantec, Digium, Mitel, Polycom, Vertical, Zultys, Cradlepoint, HP, Meraki, NetGear, and Ubiquiti

Vendors must provide, at a minimum, a licensed operating system with each type of processor, where applicable. Vendors must provide a list of the operating systems for each of the following categories of processors:

- Client Computers (Workstations, Desktops, Terminals, Laptops, Tablet, Notebook, Handheld Devices).
- Servers
- Networking Equipment
- Audio and Video Conferencing Equipment
- VOIP/Unified Communications Solutions
- Key and Access Control Equipment
- Other

The narrative that is submitted in support of the list should provide the Evaluation Committee with a clear indication of the number and type of operating systems that are proposed.

**Breadth of Offering
Howard Technology Solutions**

Operating Systems

The following list of operating systems may be applied to our desktops, laptops, servers, and tablet lines.

Client:

- Windows 10 Professional**
- Windows 10 Professional for Workstations (qualifying hardware)**
- Windows 10 IoT Enterprise (qualifying hardware and application)**
- Windows Server 2019 (servers)**

Other operating systems can be applied via customer provided images.

Vendors may propose and provide a wide range of the general-purpose software products. Vendors may provide a summarized list of the general-purpose software that is proposed for each of the following categories of processors:

- Client Computers (Workstations, Desktops, Terminals, Laptops, Tablet, Notebook, Handheld Devices).
- Servers
- Networking Equipment
- Audio and Video Conferencing Equipment
- VOIP/Unified Communications Solutions
- Video Surveillance solutions
- Key and Access Control Equipment
- Other

The narrative that is submitted in support of the list should provide the Evaluation Committee with a clear indication of the number and type of general-purpose software products that are proposed.

Breadth of Offering Howard Technology Solutions

Software

Howard Technology Solutions offers a wide range of software packages. Everything from operating systems to video editing; Howard Technology Solutions has the right package for all of its customers. Please see the listing below for a sample of software packages by category that Howard can provide to its customers.

Networking Software: Absolute, CheckPoint, Cisco, Diskeeper, Ericom, Falconstor, HP, SonicWall, Symantec, VMware

Security Software: McAfee, Symantec, Softwin, Palo Alto, 2FA, 911 Enable, Absolute Software, GoGuardian, RSA Security.

Graphic and Design Software: Adobe, Autodesk, Corel, Microsoft, Nova Development, Pinnacle Systems, Quark, Cyberlink, Extensis, FoxIT, Markzware

Business Software: FileMaker, Microsoft, Intuit, Sage

Office Productivity Software: Adobe, Cardscan, Corel, FileMaker, Microsoft, Nuance Communications

Programming and Development Software: Adobe, Microsoft, Allround Automation, Component One, Genesis One, Just Systems, Payoda, Perpetuum, Sapien Technologies

Utilities Software: Corel, Diskeeper, HP, Nuance Communications, Parallels, Symnatec, VWware

Internet and Communications Software: Cisco

Online and Appliance Based Services: Absolute, Microsoft

Other Software: Adobe, Intuit, Leapfrog, Microsoft, Nova Development

Vendors may propose and provide a wide range of the technical services including installation, training and technical support:

Client Computers (Workstations, Desktops, Terminals, Laptops, Tablet, Notebook, Handheld Devices)
Servers Printers Monitors Storage
Networking Equipment
Audio and Video Conferencing Equipment
Multimedia Hardware
VOIP/Unified Communications Solutions
Video Surveillance solutions
Key and Access Control Equipment
Other

The narrative that is submitted in support of the list should provide the Evaluation Committee with a clear indication of the number and type of technical support services that are proposed.

Breadth of Offering Howard Technology Solutions

Services

The below information was provided in a previous section of this proposal but is being restated for ease of evaluation by The System.

As stated earlier, Howard Technology Solutions' Value Added Services offerings are broken down into three distinct categories:

1. ***Network Consulting & Integration Services*** consist of services that revolve around Network infrastructure development and implementation and are typically project driven.
2. ***Technical Management Services*** consist of support services that revolve around ongoing day to day support of technology and typically have a contracted time frame.
3. ***Product Procurement Services*** consist of the procurement, configuration and delivery of computer equipment.

Please see below for a detailed listing of products and services provided as value added services by Howard Technology Solutions.

- **Systems Integration and Consulting Services**
- **Network Design, Implementation, Management and Support o
LAN and WAN**
- **Network and Data Security Review**
- **Network Assessment**
- **Wireless Network Solutions**

- **Structured Cabling**
- **Customized Training Programs**
- **Application Development**
- **Internet/Intranet Development**
- **Web Site Hosting and Management**
- **Hardware Sales, Service and Support**
- **Software Sales, Service and Support**
- **Service Level Agreements — Contract for Services**
 - **Regularly Scheduled Preventative Maintenance**
 - **Full-time, On-site Technicians and/or Engineers**
 - **Part-time, On-site Technicians and/or Engineers**
 - **As-needed, On-site Technicians and/or Engineers**

Howard Technology Solutions has the ability to provide all of these services anywhere in the State of Alabama. We have inserted a map for reference behind the tab labeled "Sales, Service, and Distribution Map".



36 Howard Drive • Ellisville, MS 39437
P.O. Box 1590 • Laurel, MS 39441



www.Howard.com

A Division of Howard Industries, Inc.

888.912.3151 general • 601.399.5077 fax
888.323.3151 technical support

Breadth of Offering Howard Technology Solutions

Other: A/V Products and Accessories

Howard Technology Solutions offers a full line of A/V products and accessories. Please find a sample list of manufacturers that fall into this category below:

A/V Manufacturers (all models): FrontRow, Nady, Elmo, Extron, Chief, Crestron, AverMedia, TOA, Mimio, Panasonic, SP Controls, Da-Lite, VBrick, Intel, Shoretel, Lightspeed, Harman, AMX, Kramar

3.26 Primary Account Representative

Vendors must identify by name and location both the proposed primary account representative and the marketing supervisor who will be responsible for the performance of the agreement. Any changes to this information must be immediately sent to the Joint Purchase Agreement Administrator.

Howard Technology Solutions' primary account representatives for ACCS will be our AL Outside Sales Representative for Higher Education. In addition, other key Howard personnel that will be involved in the performance of this agreement are listed in the chart below.

Name	Title	Phone	Fax	Email
Bennett Witcher	AL Outside Sales Representative	601.577.1069	601.399.5077	bwitcher@howard.com
Kelly Turner	AL Inside Sales Representative	601.399.5047	601.399.5077	kturner@howard.com
Rusty Thoms		601.573.6732	601.399.5077	thoms@howard.com
Brandey Boyd	Bids & Contracts Manager	601.399.5831	601.399.5077	bboyd@howard.com
Josh Jefcoat	VP EDU Sales	601.399.5846	601.399.5077	jjefcoat@howard.com
Chris Lyman	Sales Manager, Higher Education	601.399.5812	601.399.5077	clyman@howard.com
Cole Whitman	Operations Manager, Higher Education	601.399.5638	601.399.5077	cwhitman@howard.com

3.27 References

Vendors must submit three (3) references of entities of like size and complexity, and/or entities that have or are currently receiving similar products and services to those proposed by the vendor for this procurement. Each reference must include the name of the contact person, address, telephone number and description of products and services provided.

Customer Name	Contact Name	Address	Contact Phone	Email Address:	Description of Products/Services Provided
Calhoun Community College	Nathan Tyler	6250 US HWY 31 N TANNER, AL 35671	256.306.2817	nathan.tyler@calhoun.edu	Howard has provided Calhoun CC with classroom technology and Audio Visual equipment and services.
Enterprise State Community College	Jason Trull	600 PLAZA DRIVE ENTERPRIS E, AL 36330	334.347.2623 EXT 2288	jtrull@escc.edu	Howard has provided ESCC with Audio Visual equipment and services, networking products, and software.
Wallace State Community College	Matthew McFall	801 MAIN STREET NW HANCEVILL E, AL 35077	256.352.7435	matthew.mcfall@wallacesta te.edu	Howrd has provided Wallace State CC with audio visual equipment and services, networking products, and software.

3.28 Pricing Level and Guarantee

Vendors must submit with their responses a narrative that describes the baseline (published) pricing and the initial pricing level discount that is proposed, by product class or category in the ESS. The response to this specification is expected to be in the form of a percentage discount from a published, baseline price listing. Vendors must describe the baseline pricing and provide information where the baseline pricing may be accessed and verified.

Firm Price — Initial quoted discount levels must remain constant throughout the term of this agreement, subject only to subsequent increased discount amounts.

Howard Technology Solutions' baseline pricing for the ACCS JPA contract shall be our website pricing. Howard Technology Solutions maintains a published list price on its website — www.howardcomputers.com.

The published price is established based on material cost, labor cost, manufacturing cost, marketing and sales cost, engineering cost, administrative cost, freight cost, and competitive pricing information.

Howard Technology Solutions does have a current NASPO ValuePoint Contract for reference as well. Howard's NASPO pricing can be found below. Our NASPO Contract number is MNWNC-114. Discounts shown are from our current web pricing model.

<u>Products</u>	<u>% Discount NASPO</u>
Howard Desktops	18%
Howard Laptops	18%
Howard Servers	17%

Alabama College System Discounts:

<u>Products</u>	<u>The System % Discount</u>
Howard Desktops	18%
Howard Laptops	18%
Howard Servers	17%
Howard Semi-Rugged	18%

The discounts above are for Howard-branded products only. Please see the tab labeled "Baseline Discount Chart" for discounts regarding third party products.

The following table summarizes Howard Technology Solutions' cumulative discounts being offered to the members of the System.

	\$10 - \$20 Million	\$20 - \$30 Million	\$30+ Million
Howard Desktops	19%	20%	21%
Howard Laptops	19%	20%	21%
Howard Servers	18%	19%	20%
Howard Scmi-Rugged Notebooks	18%	19%	20%

3.29 Oral Presentation and Demonstration

If selected as a finalist, vendors agree to provide the Evaluation Committee the opportunity to meet with and question the proposed primary account representative at the oral presentation (if deemed necessary by the Evaluation Committee). The proposed primary account manager is expected to conduct the presentation. Vendors will be required to demonstrate their Internet based reporting and electronic commerce capabilities to the Evaluation Committee.

Howard Technology Solutions acknowledges and agrees to the above oral presentation and demonstration if deemed necessary.

3.30 Equipment and Services Schedule

Vendors must submit with their responses a complete Equipment and Services Schedule including all the products and services offered, at the initial pricing level stated in response to section 3.25.

The ESS may be submitted in a single file, PDF format on a compact disc, USB drive, or made available via a website.

Howard Technology Solutions acknowledges and complies. You will find the ESS at the following URL available for immediate download:

https://www.howardcomputers.com/state/al/admin/ACCS_Catalog_Bid-020722.xlsx

3.31 Scope of Work

The vendor shall deliver computing system products and services to procuring entities in accordance with the terms of this agreement. Accordingly, the vendor shall provide products or services only upon the issuance and acceptance by vendor of valid "purchase orders". Purchase orders will be issued to purchase the license for software or to purchase or lease products listed on the ESS. A procuring entity may purchase any quantity of product or service listed in the ESS at the prices stated therein. For large orders, the procuring entity may negotiate quantity price discounts below the ESS price(s) for a given purchase order. Vendor may offer authorized educational institutions educational price discounts that result in prices below the ESS listed prices.

Howard Technology Solutions acknowledges and complies.

3.32 Title Passage

Title to equipment shall pass to the procuring entity upon acceptance of equipment.

Howard Technology Solutions acknowledges and complies.

3.33 Quantity Guarantee

This agreement is not an exclusive agreement. Procuring entities may obtain computing system products and services from other contract awarded vendors during the agreement term.

Howard Technology Solutions acknowledges and complies.

3.34 Order of Precedence

Each purchase order that is accepted by the vendor will become a part of the agreement as to the products and services listed on the purchase order only; no additional terms or conditions will be added to this agreement as the result of acceptance of a purchase order. In the event of any conflict among these documents, the following order of precedence shall apply:

- A. the terms and conditions of this RFB
- B. exhibits to this agreement
- C. the list of products and services contained in the purchase order
- D. vendor's response

Howard Technology Solutions acknowledges and complies.

3.35 Payment Provisions

All payments under this agreement are subject to the following provisions:

A. Acceptance

The procuring entity shall determine whether all products delivered to it meet the vendor's published specifications. No payment shall be made for any products until the products have been accepted by the procuring entity.

Unless otherwise agreed upon between the procuring entity and the vendor, within thirty (30) days from the date the procuring entity receives written notice from the vendor that payment is requested for services or within thirty (30) days from the receipt of products, the procuring entity shall accept or reject the products or services.

B. Payment of Invoice

Payments shall be submitted to the vendor at the address shown on the invoice. Payment shall be tendered to the vendor within thirty (30) days from acceptance. **Please see tab labeled "Payment Terms".**

In the event an order is shipped incomplete (partial), the procuring entity must pay for each shipment as invoiced by the vendor unless the procuring entity has clearly specified "No Partial Shipments" on each purchase order.

C. Invoices

Invoices shall be submitted to the procuring entity.

Howard Technology Solutions acknowledges and complies. Please see attachment labeled "Payment Terms" for full Howard Technology Solutions payment agreement.

3.36 Shipment and Risk of Loss

Vendor must ship all products F.O.B. destination regardless of price discounts. Risk of loss or damage to the products shall pass to the procuring entity upon delivery to the procuring entity. Vendor agrees to assist the procuring entity with the processing of claims for such loss or damage and to expedite the processing of claims for such loss or damage and to expedite replacement of lost or damaged products. Destination charges shall be included in the product price on the ESS.

All license agreements or sales order contracts, which must be signed prior to delivery of proposed items, must be included with the bid for review by the System. Documents not submitted with the response will not be considered at a later date. In all cases, should there be a conflict of terms and conditions, those terms and conditions in this REQUEST and any resulting System purchase order will prevail.

Whenever a procuring entity does not accept any product and returns it to the vendor, all related documentation furnished by the vendor shall be returned also. The vendor shall bear all risk of loss or damage with respect to returned products except for loss or damage directly attributable to the negligence of the procuring entity.

Unless otherwise agreed upon by the procuring entity, the vendor is responsible for the pick-up of returned equipment. Software and documentation will be returned via U.S. Mail at the expense of the procuring entity.

Unless otherwise arranged between the procuring entity and vendor, all shipments of products shall be by vendor truck, UPS, or Federal Express Second Day (or other way, specify).

Howard Technology Solutions acknowledges and complies.

3.37 Warranties

At a minimum, the products shall be covered under the manufacturer's warranties in effect at the time the products are delivered or the warranties in effect at the time of contract award, whichever is most beneficial to the procuring entity.

Howard Technology Solutions acknowledges and complies.

Howard Technology Solutions has several warranty options from which its customers may choose. With the exception of portable systems (i.e Notebooks, Tablet PCs, etc.) and third party products, all Howard Technology Solutions products come standard with a three-year limited, one-year next business day on-site warranty. This includes on year of next business day on-site service and two years of next business day parts delivery service. Please see tab labeled "Warranty Information" for more information on Howard's warranties for Howard-manufactured systems.

All Howard Technology Solutions systems can be upgraded from the standard limited warranty. Depending on the extended warranty option of your choice, you are completely covered for parts, labor and onsite service for the number of years included with your selected option.

Howard's toll-free technical support is available 7-dys a week, 24-hours a day. This is good for the life of the system.

Howard Technology Solutions recognizes the need to provide our partners and customers with access to the very latest in peripherals and other technology products, has established agreements and partnerships with many of the leading distributors and manufacturers. Over 10,000 products such as printers, scanners, digital cameras, network equipment (routers, switches, etc.) and software are available online directly from our website. Any items purchased from the online catalog separate from the Howard Technology Solutions base system will be covered by the manufacturer's warranty. Items purchased as part of a Howard Technology Solutions base system are covered by Howard Technology Solutions' Limited Warranty Agreement.

For all non-Howard manufactured equipment, Howard will work with ACCS members and the manufacturer of said products to fulfill any warranty claim that may arise.

3.38 Price Guarantees

The procuring entity shall pay the lower of the prices contained in the ESS or an announced promotion price, educational discount price, general price reduction or large order negotiated price. Only general price reduction decreases will apply to all subsequent orders accepted by vendor after the date of the issuance of the revised prices. Vendor agrees to maintain ESS product prices in accordance with the volume price discount guarantees filed. Prices set forth in the ESS are subject to decrease without prior notice. Special pricing discounts offered by successful bidders after the award of bids shall remain in effect for a minimum of 30 days.

Howard Technology Solutions acknowledges and complies.

Note: Special "promotional" pricing will be available to ACCS members. The promotional price is the end price to the customer. No additional discounts apply to those purchases.

3.39 Technical Support

The vendor agrees to maintain a toll-free technical support telephone line. The line shall be accessible to procuring entity personnel who wish to obtain competent technical assistance regarding the installation or operation of products supplied by the vendor.

Howard Technology Solutions acknowledges and complies.

Howard Technology Solutions' technical support personnel are available 7x24x365 via our toll-free number 888.323.3151

3.40 Product Delivery

Vendor agrees to deliver products to procuring entities within 30 days after receipt of a valid purchase order unless otherwise negotiated with procuring entity.

Howard Technology Solutions acknowledges and complies.

3.41 Impracticality of Performance

A party shall be excused from performance under this agreement for any period that the party is prevented from performing as a result of an act of God, strike, war, civil disturbance, epidemic, or court order, provided that the party has prudently and promptly acted to take any and all steps that are within the party's control to ensure performance. Subject to this provision, such non-performance shall not be deemed a default or a ground for termination.

Howard Technology Solutions acknowledges and complies.

3.42 Records and Audit

Vendor agrees to maintain detailed records pertaining to the price of services rendered and products delivered for a period of three years from the date of acceptance of each purchase order. These records shall be subject to inspection by the procuring entity and appropriate governmental authorities with the state of Alabama. The procuring agency shall have the right to audit billings either before or after payment. Payment under this agreement shall not foreclose the right of the procuring entity to recover excessive or illegal payments.

Howard Technology Solutions acknowledges and complies.

3.43 Use of Subcontractors

The vendor may subcontract installation, training, warranty or maintenance services. However, the vendor shall remain solely responsible for the performance of this agreement. All procuring entity payments for products or services shall be made directly to the vendor. If subcontractors are to be used, the name of the authorized subcontractor(s) shall be identified in the applicable participating addendum(s).

Howard Technology Solutions acknowledges and complies.

3.44 Indemnification

The vendor shall indemnify and hold harmless the System from any loss, cost or expense suffered or incurred in connection with any claim, suit or proceeding brought against the System so far as it is based on defects in products provided to the System.

The vendor hereby covenants and agrees, at its sole cost and expense during the term of this agreement, to indemnify and hold harmless the System and its officers, agents and employees against and from any and all claims or demands by or on behalf of any person, firm, corporation or governmental authority, arising out of, attributable to or in connection with the use, occupation, possession, conduct or management of the vendor concerning the equipment or services performed and rendered hereunder, including, but without limitation, any and all claims for injury or death to persons or damage to property or any and all claims for Patent, Trademark, Copyright, Intellectual Property, or Trade Secret Infringement. The vendor also covenants and agrees, at its sole cost and expense, to hold the System and its officers, agents, and employees from and against all judgments, costs, counsel fees, expense and liabilities incurred in connection with any such claim and any action or proceeding brought thereon, and in case any action is brought against the System or against any of its officers, agents, or employees, by reason of any such claim, the vendor upon notice from the System will resist and defend such action or proceeding by qualified counsel. However, the provisions of this Section shall not apply to any claims arising from the negligent or willfully wrongful acts or omissions of the System, or its officers, agents, or employees.

For the purposes of paragraph 3.44, the term, the System, shall include all entities listed in Appendix A or any subsequent revision thereof and their respective officers, directors, employees, agents and assigns.

Howard Technology Solutions acknowledges and complies.

3.45 Website Maintenance

Vendor agrees to maintain and support an Internet website for access to the ESS, configuration assistance, product descriptions, product specifications and other aids in accordance with instructions provided by the contract. In addition, vendor may provide electronic commerce assistance for the electronic submission of purchase orders, purchase order tracking and reporting.

Howard Technology Solutions acknowledges and complies.

3.46 Ethics

The vendor warrants that it presently has no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required under this agreement.

If any owner, officer, partner, board or director member, employee, or holder of more than 5% of the fair market value of your firm or any member of their households is a public official or public employee (including the System) as defined by the Code of Alabama Section 36-25-1, this information must be included in your response. Failure to disclose this information in your response will result in the elimination of your response from evaluation. If your firm is awarded any contract as a result of this request, the System reserves the right to furnish a copy of any resulting contract to the State of Alabama Ethics Commission as directed in the Code of Alabama, Section 36-25-11, within ten (10) days of award.

System employees are not allowed to accept personal gifts or gratuities.

Howard Technology Solutions acknowledges and complies.

3.47 Replacement Parts

Replacement parts may be refurbished with agreement of procuring entity.

Howard Technology Solutions acknowledges and complies.

3.48 FCC Certification

The vendor agrees that hardware supplied by the vendor meets all applicable FCC Certifications. Improper, falsely claimed or expired FCC certifications are grounds for contract termination.

Howard Technology Solutions acknowledges and complies.

3.49 Site Preparation

A procuring entity shall prepare and maintain its site in accordance with written instructions furnished by the vendor prior to the scheduled delivery date of any equipment or service and shall bear the costs associated with the site preparation.

Howard Technology Solutions acknowledges and complies.

3.50 Assignment

The vendor shall not assign nor transfer any interest in this agreement or assign any claims for money due or to become due under this agreement without prior written approval from procuring entity.

Howard Technology Solutions acknowledges and complies.

3.51 Survival

Certain paragraphs of this agreement including but not limited to Patent, Copyright, Trademark, and Trade Secret Indemnification; Indemnification; and Limit of Liability shall survive the expiration of this agreement. Software licensees, lease, warranty and service agreements that were entered into under the terms and conditions of this agreement shall survive this agreement.

Howard Technology Solutions acknowledges and complies.

3.52 Lease Agreements

Vendor may lease equipment to procuring entities in accordance with terms and conditions approved by the appropriate governing authority for the procuring entity.

Howard Technology Solutions acknowledges and complies. Howard Technology Solutions is happy to offer leasing to any interested ACCS members.

3.53 Vendor Disclosure Statement

Act 2001-955 requires the disclosure statement to be completed and filed with all proposals, bids, contracts, or grant proposals to the State of Alabama in excess of \$5,000. In circumstances where a contract is awarded by competitive bid, the disclosure statement shall be required only from the person receiving the contract and shall be submitted within ten (10) days of the award.

Upon being awarded the contract, Alabama State Law requires that the vendor must complete a Vendor Disclosure Statement. The 2-page form and the instructions are available online as noted per Appendix D. The form is required by the vendor and covers the duration of the bid.

Vendor agrees, for the duration of the agreement, that they will not violate federal immigration law or knowingly employ, hire for employment, or continue to employ an unauthorized alien within the State of Alabama in compliance with the Beason-Hammon Alabama Taxpayer & Citizen Protection Act (Act 2011-535). Upon being awarded the contract, Alabama State Law requires that the vendor must complete the Business Entity Employer Contractor Compliance form as proof that the vendor has enrolled in the E-Verify program as required by state law. The form and the instructions are available online as noted per Appendix D. E-Verify documentation, which is unavailable due to the Federal Government shutdown, will be deferred until such documentation may be obtained from any federal agency.

It is furthered agreed that the terms and commitments contained herein shall not constitute a debt of the State of Alabama in violation of Section 213 of the Constitution of Alabama of 1901, as amended by Amendment Number 26. If any provision of the agreement shall contravene any statute or constitutional provision, either now in effect or which may be enacted during the term of this agreement, then the conflicting provision of this agreement shall be deemed null and void. Vendor understands, acknowledges, and agrees that its sole and exclusive remedy for any claim which may arise for or relate to this agreement is to file a claim with the Board of Adjustment of the State of Alabama.

In compliance with Act 2016-312, the vendor hereby certifies it is not currently engaged in, and will not engage in, the boycott of a person or an entity based in or doing business with a jurisdiction with which this state can enjoy open trade.

Howard Technology Solutions acknowledges and complies.

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ISO Certification

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Sample Reports

Sample Report 1: Quarterly Utilization Report

State	Bill To Name	Customer PO Number	Ship Date	Invoice Number	Product Description	Qty	Total Price
AL	TE UNIVERSITY	PO# P2100986	08/23/2021	528721	Dell Precision Mobile Workstation 3560 - Core i5 1135G7 - Win 10 Pro 64-bit - 16 GB RAM - 256 GB SSD NVMe, Class 40 - 15.6" 1920 x 1080 (Full HD) @ 60 Hz -	1	1,545.00 \$
AL	ATHENS STATE UNIVERSITY	PO# P2100986	08/23/2021	528725	Dell Precision Mobile Workstation 3560 - Core i5 1135G7 - Win 10 Pro 64-bit - 16 GB RAM - 256 GB SSD NVMe, Class 40 - 15.6" 1920 x 1080 (Full HD) @ 60 Hz -	4	6,180.00 \$
AL	ATHENS STATE UNIVERSITY	PO# P2101057	08/26/2021	529110	Lenovo ThinkBook 15 G2 ITL 20VE - Core i7 1165G7 / 2.8 GHz - Win 10 Pro 64-bit - 16 GB RAM - 512 GB SSD NVMe - 15.6" IPS 1920 x 1080 (Full HD) -	1	1,132.00 \$
AL	ATHENS STATE UNIVERSITY	PO# P2101057	08/26/2021	529110	SMK-Link Electronics VP6960 - Docking station - USB-C x 2 - VGA, 2 x HDMI - GigE	1	145.00 \$
AL	ATHENS STATE UNIVERSITY	PO# P2101057	08/26/2021	529110	Acer Nitro QG241Y - LED monitor - 23.8" - 1920 x 1080 Full HD (1080p) @ 75 Hz - VA - 250 cd/m ² - 1 ms - 2xHDMI, VGA - black	2	320.00 \$
AL	ATHENS STATE UNIVERSITY	PO# P2101115	08/02/2021	526953	V7 Essential - Notebook carrying backpack - 16" - black	2	40.00 \$
AL	ATHENS STATE UNIVERSITY	PO# P2101115	08/25/2021	528999	SMK-Link Electronics VP6960 - Docking station - USB-C x 2 - VGA, 2 x HDMI - GigE	2	290.00 \$

Sample Report 2: Quarterly Utilization Report

Date	State Entity	Client	Description Summary	Total
			Agency Subtotal	
			Institutions Higher Learning Subtotal	0.00 \$
12/13/2021	Education-HED	EAST CENTRAL COMMUNITY COLLEGE	Epson EB-PU2010W - 3LCD projector - 10000 lumens (white) - 10000 lumens (color) - WUXGA (1920 x 1200) - 16:10 - 1080p - LAN	9,795.00 \$
11/03/2021	Education-HED	East Mississippi Community College	Extreme Networks - Patch cable - LC single-mode (M) to MPO (M) - 10 m - fiber optic	5,240.00 \$
10/11/2021	Education-HED	Holmes Community College	Installation for Opp9979 Music Room AV	3,185.00 \$
			Community College Subtotal	18,220.00 \$
11/17/2021	Education-K12	Scott County School District	Rolling TV Stand Mobile TV Cart for 55" - 80" Plasma Screen, LED, LCD, OLED, Curved TV's - Universal Mount with Wheels	292.00 \$
			K12 Subtotal	292.00 \$
12/09/2021	Public Safety	City of Southaven	GETAC : TG3 83 Key, Backlit, Touchpad, USB, Coiled Cord, No logo, bundled 3 year warranty	1,194.00 \$
11/22/2021	Public Safety	Hinds County Government	Howard IQ-K Desktop	61,620.00 \$
12/20/2021	Public Safety	Sharkey-Issaquena County Library	Howard H510MKB Desktop	2,445.00 \$

Governing Authorities Subtotal	65,259.00 \$
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Grand Total	83,771.00 \$
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Sample Report 3: Monthly Utilization Report

Part Number	Product Description	MFG	Customer Name	Qty	Order Date	Delivery Date	Price
07SYS40004900	MimioPad	Mimio	Okaloosa County Schools	1	20150831	20150901	\$ 299.00
07PER40013F00	MimioView	Mimio	Santa Rosa County Schools	1	201450917	20150922	\$ 599.00
07ACC3007400	Mimio Mouse	Mimio	St Johns County Schools	1	20150903	20150909	\$ 79.00
07AVI50014800	MimioTeach Stylus	Mimio	Okaloosa County Schools	1	20150915	20150918	\$ 144.00
07PWR10020E00	Mimio Power Adapter	Mimio	St Johns County Schools	1	20150831	20150904	\$ 60.00
07AVI150014900	MimioHub Receiver	Mimio	Okaloosa County Schools	1	20150903	20150910	\$ 40.00

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Baseline Pricing Chart



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Howard-branded products are designed, assembled, and quality tested in the USA. Each one includes a top-rated warranty and free customer support for as long as you own it.

• Desktops • eSPORTS • Kiosks • Lighting
• Notebooks • Servers • Tablets • Workstations



A | COMPUTING SOLUTIONS

1. **ACCESSORIES:** Belkin, C2G, CaseLogic, Kensington & Targus
2. **ANTIVIRUS:** AVG, BitDefender, Cylance, GoGuardian, Kaspersky Lab, MalwareBytes, McAfee, Palo Alto, Panda Security, Sophos, Symantec, Total Defense & Trend Micro
3. **ASSET MANAGEMENT:** Absolute, Asset Panda, Hayes & Symantec
4. **DESKTOPS:** **HOWARD**, Acer, Dell, HP & Lenovo
5. **MOBILE DEVICE MANAGEMENT:** Airwatch, Filewave, GoGuardian, Lightspeed Systems & Securly
6. **MOBILE PRESENTATION & CHARGING STATIONS:** Anywhere Cart, Aver, Blackbox, Bretford, Copernicus, Datamation, Earthwalk, Ergotron, Kwikboost, LocknCharge, Luxor, MooreCo, PowerGistics & Spectrum
7. **NOTEBOOKS & TABLETS:** **HOWARD**, Acer, Asus, Dell, Fujitsu, HP, Lenovo, Microsoft, Samsung & Toshiba
8. **PRINTERS (2D & 3D):** 3D Systems, Brother, Craftunique, HP, Kyocera, Lexmark, Makerbot, OKI & Xerox
9. **REFURBS:** Charge Carts, Computers, Document Cameras, Monitors, Notebooks, Servers, Storage & Tablets
10. **VR:** Epson, HP, HTC Vive, Lenovo, Oculus Rift & Samsung



B | AUDIOVISUAL + INSTRUCTIONAL SOLUTIONS

1. **AUDIO SOLUTIONS:** AMX, Audio Enhancement, Crestron, Elmo, Extron, Lightspeed & Shure
2. **BROADCASTING:** Panasonic, Sony & TriCaster
3. **CABLES:** C2G, Comprehensive, Crestron, Liberty Cable, MonoPrice & West Penn
4. **CONTROL SYSTEMS:** AMX, Atlona, Crestron, Extron, FrontRow, Kramer & SP Controls
5. **DOCUMENT CAMERAS:** Aver, Boxlight, Elmo, Epson, HoverCam, & Lumens
6. **FURNITURE:** CEF, Middle Atlantic, MooreCo, Spectrum, VFI & Worthington
7. **INTERACTIVE CLASSROOM SOLUTIONS:** BenQ, Boxlight, Epson, Interactive Projectors, NEC, Qomo, Samsung & SMART
8. **INTERACTIVE DISPLAYS:** Aver, BenQ, Boxlight, Cleartouch, HoverCam, Newline, Promethean, Qomo, Ricoh, Sharp, Viewsonic & Wacom
9. **INTERCOMS, BELLS & PAGING SYSTEMS:** Atlas, Audio Enhancement, Extron, Harman & Valcom
10. **LECTURE CAPTURE:** Audio Enhancement, Crestron, Discover Video, Extron, Lumens & VBrick
11. **MIXERS & MICROPHONES:** AKG, Allen & Heath, Shure & Soundcraft
12. **MONITORS & DISPLAYS:** LG, NEC, Panasonic, Planar, Samsung, Sharp, Sony & Viewsonic
13. **MOUNTS:** Chief, Peerless & Premier Mounts
14. **PROJECTORS:** BenQ, Boxlight, Casio, Christie, Epson, Hitachi, Infocus, NEC, Panasonic, Sony & Viewsonic
15. **PROJECTOR SCREENS:** Da-Lite & Draper
16. **SPEAKERS & AMPS:** Audio Enhancement, Crestron, Crown, Danley, Extron, JBL, Lab Gruppen, Renkus-Heinz & Tannoy
17. **VIDEO CAMERAS:** Audio Enhancement, Aver, Axis, Hitachi, Panasonic, Sony & Vaddio
18. **VIDEO CONFERENCING:** Cisco, Crestron, Lifesize, MashMe, Polycom & Zoom
19. **WEBCASTING:** Vivi
20. **WIRELESS INTERACTIVE PADS:** Elmo & Qomo



C | NETWORKING INFRASTRUCTURE SOLUTIONS

1. **BACKUP & REPLICATION:** Barracuda, CommVault, Cybernetics, Exagrid, HPE, Quest, Rubrik, Spectra Logic, Unitrends, Veeam, VMware & Zerto
2. **BANDWIDTH MANAGEMENT SOLUTIONS:** Allot & Radware
3. **CONTENT FILTERING:** Barracuda, ContentKeeper, ESET, FamilyZone, Fortinet, iBoss, Lightspeed Systems, Palo Alto & Securly
4. **CONTINUITY SOLUTIONS:** Cisco
5. **COOLING, LAN STORAGE & POWER PROTECTION PRODUCTS:** APC, Cyberpower, Eaton, Orion, Schneider Electric, SurgeX & Tripp Lite
6. **DISASTER RECOVERY PRODUCTS:** **HOWARD**, Dell EMC, Veeam & VMware
7. **EMAIL ARCHIVING SOLUTIONS:** Arcmail & Barracuda
8. **HYPERCONVERGED:** Dell EMC, HPE, HVE, NetApp & Nutanix
9. **NETWORK ACCESS CONTROL:** Aruba, Extreme, Fortinet & Impulse
10. **NETWORK INFRASTRUCTURE:** Aruba, Broadcom, Cisco, Extreme, HPE & Ruckus
11. **SECURITY SOLUTIONS:** Aruba, Barracuda, BitDefender, Fortinet, Juniper, McAfee, Panda Security, Radware, Sophos & Symantec
12. **SERVERS:** **HOWARD**, Dell, Fujitsu, HPE, HVE, IBM & Lenovo
13. **STORAGE:** Buffalo, Dell EMC, HVE, Overland Tandberg & Western Digital
14. **VOIP:** Cisco, Digium, Fortinet, Mitel, Polycom, Vertical & Zultys
15. **WIRELESS:** Arista Networks, Aruba, Cisco, Cradlepoint, Extreme, Fortinet, HP, Meraki, NetGear, Riverbed, Ruckus & Ubiquiti



D | VIRTUALIZATION

1. **BACKUP & DATA RECOVERY:** Barracuda, Nakivo, Unitrends, Veeam & Zerto
2. **CLOUD:** AWS, Greencloud & Microsoft
3. **DESKTOP VIRTUALIZATION:** Citrix, HVE, NComputing & VMware
4. **SERVER VIRTUALIZATION:** Citrix, HVE, Microsoft, Overland Tandberg & VMware
5. **SERVERS:** **HOWARD**, Dell, HPE, HVE, Lenovo & Nutanix
6. **SOFTWARE-DEFINED STORAGE:** DataCore & VMware
7. **STORAGE:** Dell EMC, HPE, HVE, Lenovo, Overland Tandberg, QNAP & Synology
8. **VDI:** Citrix, Dell, HVE, Inuvika, LG, NComputing & VMware



E | PHYSICAL SECURITY

1. **ACCESS CONTROL:** 3xLogic, ANVIZ, BFT Americas Inc., IDIS Global, IRISID, Kantech, OpenPath, Panasonic, Paxton, Proxess, Proxy, SafePass, Salto & TagMaster
2. **ACTIVE SHOOTER:** A.S.R.S., AMBERBOX, Athena Security, Crotega, Noice Industries & ZeroEyes
3. **BEHAVIOR MANAGEMENT:** IPVideo Corp.
4. **DOXY PROTECTION:** Bulletsafe
5. **CLOUD:** Brivo, OpenPath & ProdataKey
6. **DISPLAYS:** Avue Technologies, Bosch, LG, NEC, Panasonic, Planar, Samsung, Sharp, Sony & Viewsonic
7. **EMERGENCY ALERT NOTIFICATION:** Audio Enhancement, Lynx, SafeKard & Singlewire
8. **ENCODERS:** Axis & Panasonic
9. **GUARD SERVICES EQUIPMENT:** MRKT-IT
10. **INTERCOMS:** 2N, Aliphone & Comelit
11. **LIGHTING:** **HOWARD**
12. **MOBILE SECURITY:** MRKT-IT



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E | PHYSICAL SECURITY (cont'd)

13. **POINT-TO-POINT SECURITY:** Altronix, Axis, C2G, Moog & Panasonic
14. **PERIMETER SECURITY:** Boon Edam, Garrett & NightLock Lockdown
15. **SECURITY:** Avue Technologies, Axis, Cisco, CP Technologies, Exacq, IPConfigure, Lexmark, Milestone, Panasonic, Pivot-3, Plustek, Q-See, Seneca, SoleraTec, TRENDnet, Ubiquiti, ViewZ & Vivotek
16. **SECURITY INFRASTRUCTURE:** Altronix, Audio Enhancement, FluidMesh Networks & Ubiquiti
17. **VIDEO MANAGEMENT SOFTWARE:** Axis, Exacq, Milestone & Panasonic
18. **VIDEO SURVEILLANCE:** Audio Enhancement, Axis, Milestone, Panasonic & Verkada
19. **VIDEO MANAGEMENT:** AxonSoft, IDSCAN, iLobby, SilverShield & Traction Guest



F | KIOSKS + DIGITAL SIGNAGE

1. **CONTENT MANAGEMENT SOFTWARE:** Discover Video, Hiperwall, Hypersign, RevelTV, Signage Live & Visix
2. **DIGITAL OUTDOOR SIGNS & SCOREBOARDS:** Daktronics & Optec
3. **INDOOR KIOSKS:** HOWARD
4. **LARGE FORMAT DISPLAYS:** LG, Panasonic, Planar, Samsung, Sharp, Sony & Viewsonic
5. **MEDIA PLAYERS:** BrightSign, Discover Video, Viewsonic & Vivitek
6. **MOUNTS & MOUNTING BRACKETS:** Chief, Peerless & Premier Mounts
7. **OUTDOOR KIOSKS:** HOWARD
8. **THROUGH-THE-WALL KIOSKS:** HOWARD
9. **TABLETOP KIOSKS:** HOWARD
10. **TELEMEDICINE KIOSKS:** HOWARD
11. **WAYFINDING KIOSKS:** HOWARD, 22Miles & Visix



G | SOFTWARE SOLUTIONS

1. **FEATURED SOFTWARE:** Hapara & Viper
2. **ANTIVIRUS:** AVG, BitDefender, Cylance, GoGuardian, Kaspersky Lab, MalwareBytes, McAfee, Palo Alto, Panda Security, Sophos, Symantec, Total Defense & Trend Micro
3. **BACKUP, RECOVERY & UTILITY:** Nakivo & Symantec
4. **CHROMEBOOK-ENABLING SOFTWARE:** Neverware
5. **CONTENT CREATION:** Avid
6. **CREATIVITY, DESIGN & PAGE LAYOUT:** Adobe
7. **IT & NETWORK MANAGEMENT:** Hayes Software & Velocloud
8. **NETWORK SECURITY:** Absolute Software, Bitdefender, Check Point, GoGuardian & Sonicwall
9. **PRINT MANAGEMENT:** PaperCut
10. **PROGRAMMING & WEB DEVELOPMENT:** Microsoft & Rubrik
11. **VIRTUALIZATION & STORAGE:** Citrix, DataCore, Veeam & VMware



H | PROFESSIONAL SERVICES

1. **CONSULTING:** Network Assessments, Outsourced Labor & Wireless Surveys
2. **INSTALLATION & DESIGN SERVICES:** Audiovisual & Computing, Cabling, Distance Learning & Video Conferencing, Network and Data Centers & Wireless Access
3. **MANAGED SERVICES:** E-Rate Eligibility, IT Outsourcing, Network Consulting & Onsite Technicians
4. **PHYSICAL SECURITY & VIDEO SURVEILLANCE SERVICES:** Aver, Axis, Cisco, Lumens, Milestone, Panasonic & Salto
5. **PROFESSIONAL DEVELOPMENT/TRAINING:** Curriculum Training, Instructional Technologies & 21st Century Classrooms- MobileMind
6. **PROGRAMMING SERVICES:** Control Systems & Video Conferencing
7. **SUPPORT SERVICES:** Asset Tagging, Custom Imaging, Etching, HTTP, OnCall, Technology Management & White Glove Services



I | EVERYDAY ACCESSORIES

1. **BAGS & CASES:** Belkin, Brenthaven, CaseLogic, Greensmart, Gumdrops, Higher Ground, Incase, MaxCases, Mobile Edge & Tucano
2. **HARDWARE:** Cameras & Camcorders, Ink, Keyboards, Mice & Pointing Devices, Monitors, Power Devices, Printers, Projectors, Scanners, Toner & Other Accessories
3. **NETWORKING:** Adapters, Bridges, Cables, Cards, Hubs, IP Telephony, Modems, Routers, Security Devices, Switches, Video Conferencing Products, WAPs & Other Accessories
4. **PRINTING CONSUMABLES:** Brother, Canon, HP, Lexmark & PCI



J | PRO DEVELOPMENT | TEACHING + LEARNING

1. **FUSION:** FUSION is HOWARDedu's Professional Learning Model that takes teaching, standards, content and pedagogy, and fuses it with technology to create new learning environments where students are engaged in daily instruction.
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3. **CODING:** Discover how to incorporate computer science into the core curriculum and teach the computational skills needed to engage students with coding, robots and STEM tools.
4. **MOBILEMIND:** MobileMind's differentiated and time-conscious virtual training builds capacity and helps drive adoption of technology usage.
5. **STEMFUSE:** Discover the best STEM-based Curriculum software.



K | eSPORTS SOLUTIONS

1. **GAMING DESKTOPS:** HAVOC^{PC}, Acer, Asus, Dell, HP & Lenovo
2. **GAMING FURNITURE:** Spectrum
3. **GAMING HEADSETS:** Corsair
4. **GAMING KEYBOARDS:** Corsair
5. **GAMING LAPTOPS:** HAVOC^{PC}, Acer, Asus, Dell, HP & Lenovo
6. **GAMING MICE:** Corsair
7. **GAMING MONITORS:** Asus, HP, Lenovo & Viewsonic
8. **GRAPHICS CARDS:** Acer & Asus



L | E-COMMERCE (www.howardedu.com)

1. **PREMIERE WEBSITE CUSTOMIZATION**
2. **SHOP BY APPROVED PRODUCTS PAGE (APP)**
3. **SHOP BY CONTRACT:** BuyBoard, NASPO ValuePoint, NCPA & TIPS/TAPS
4. **SHOP BY ROOM**

OUTSIDE REP

EMAIL

PHONE

INSIDE REP

EMAIL

PHONE



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Howard HTTP Program

HTPP

Howard Technical Partnership Program

Fast, Flexible, and Free

Howard Technology Solutions realizes that many organizations handle basic hardware service and support in one of two ways: they either make a significant investment in establishing and maintaining a group of local service providers, or they use their own internal support staff. For this reason, we have developed the Howard Technical Partnership Program (HTPP) so we can satisfy either option by facilitating timely, cost-effective, quality service in conjunction with our high standards for customer satisfaction.

Managed by our 100% US-based support engineers and technicians, HTPP is an integral part of our strategy to establish direct, personal relationships with our customers to ensure we meet all of their organizations' needs. Participation is easy; simply complete an HTPP application online at www.howardcomputers.com/support.

"Howard's Technical Partnership Program is an integral part of our strategy to establish direct, personal relationships with our customers to ensure we meet all of their organizations' needs."



Program Highlights

- No subscription fee or certification requirements
- Labor reimbursement for authorized repairs
- Expedited service and/or replacement part ordering
- Free consultation to determine your optimal parts inventory with on-site parts inventory available to qualifying organizations
- You NEVER pay for defective parts and shipping is FREE as long as the warranty claim is valid!

Howard System and Technology Advancement Updates

Receive frequent updates highlighting our new technologies; system improvements; and information on the latest Howard desktops, notebooks, servers, and much more.

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Program Details

By participating in HTPP, you will enjoy the benefits listed below:

- **No annual subscription fee.** We do not charge any fee for participating in HTPP.
- **No certification requirements.** We do not require you to have or maintain any type of professional certifications such as COMPTIA A+, COMPTIA Network, or Microsoft® certifications. However, we do encourage you to obtain certifications as appropriate and do weight these certifications when reviewing your application.
- **Labor reimbursement.** Receive labor reimbursement for qualified repairs performed on Howard branded systems during the on-site warranty maintenance period. The labor reimbursement is for touch-labor on a per incident basis regardless of the number of components or subassemblies replaced. The reimbursement amount is dependent upon geographic location and negotiated prior to execution of the Howard Technology Solutions Warranty Service Agreement.
- **Expedited spare parts ordering.** You may order spare parts via email or the web directly from the factory without any requirement to call us. As an HTPP member, we are assured your organization has the skilled, technical staff to properly troubleshoot and diagnose system problems and issues. Your technical staff is only required to provide exact error message and accurate diagnostic steps in determining the actual problem of the faulty hardware.
- **Recommended spare parts list.** We will provide a recommended spare parts list to assist your organization in maintaining the correct number and types of spare parts. This will help you keep spare parts costs to an absolute minimum. And because we maintain an exhaustive history of all ordered parts, we can provide you with a very precise spare parts inventory recommendation.
- **On-site consignment spare parts inventory.** For qualifying organizations, we will enable you to maintain a spare and a replacement part(s) inventory on-site so that you can re-stock your inventory with the replacement part(s).
- **Centralized inventory of spare parts.** Howard Technology Solutions maintains an abundant inventory of spare and replacement parts at our manufacturing facility to ensure that when you need a spare part, it is readily available.
- You must contact us to obtain a Return Material Authorization (RMA) number whenever you encounter a defective part.
- We will send you the replacement part. With Howard Technology Solutions, you NEVER pay for defective parts as long as the warranty claim is valid.
- A shipping label(s) is included with the replacement part to return the defective part.
- You return the defective part using the shipping label(s) so that you avoid additional costs.



For additional information please contact our Technical Support Department at 888.323.3151 or 601.399.5774 (fax).

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HOWARDTM

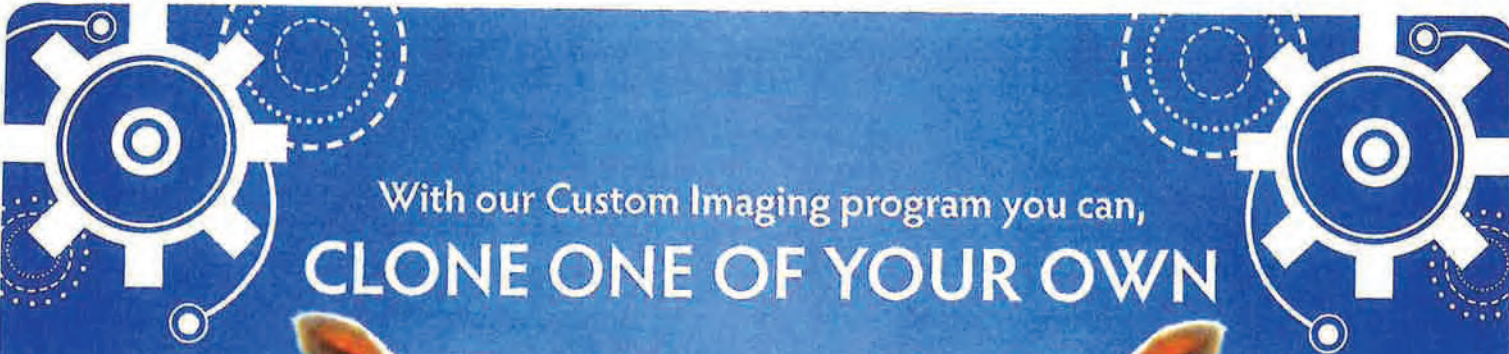
TECHNOLOGY SOLUTIONS

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888.912.3151 general • 601.399.5077 fax
888.323.3151 technical support

Howard Custom Imaging



With our Custom Imaging program you can,
CLONE ONE OF YOUR OWN



The next time you receive a shipment of computers, wouldn't it be nice to simply remove them from their boxes, plug them into your network and a power source, and begin using them right away? It can happen, and it's a FREE service from Howard. With our Custom Imaging program, we'll save you the countless hours usually spent installing software and configuring systems requirements. We do it for you! Not only that, but we store your custom images onsite, so that we can replicate them as directed by you on all future orders. It's just another way we demonstrate our commitment to our customers and their needs.

Here is how the program works...

1. You take a shipment of a single unit which you use to customize to your specific requirements including software loads, group policy, and other customizations.
2. Once you have tailored the hard drive to your specific needs, return it to us.
3. Upon receipt, our expert team of engineers will review the custom image you've created on the hard drive before replicating it on all remaining units in your order.
4. Finally, we will test these systems to ensure there are no issues before we ship them to you.

For more information, contact a Howard Sales representative at 888.912.3151 or visit us online at www.howard.com.

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Warranty Information

Howard Branded Product Warranty

Every time you purchase a Howard Technology Solutions branded product in the U.S., you receive a Limited Warranty which provides you with a comprehensive service and support program for the term of the warranty. To determine the warranty type and duration that is included with your purchase, see your packing slip or order confirmation. Alternately, you may email your questions or description of the problem to Technical Support Center at: tech@howardcomputers.com

Note: Warranty service may be fulfilled by shipping user replaceable parts, such as keyboard, mouse, cables, monitors, speakers, or similar devices directly to you.

The product you have purchased is warranted by Howard Technology Solutions to be free of defects in materials and workmanship under normal use for the duration of the terms as stated in the Limited Warranty. The warranty begins the day we ship your Howard Technology Solutions branded product. As an added convenience, Howard Technology Solutions keeps track of this date for you. Your product's Limited Warranty is non-transferable and will not be honored if the ownership of the product changes. For the duration of the Limited Warranty, Howard Technology Solutions will repair or replace defective parts with new or serviceable parts, which meet or exceed the performance of new parts.

What is not covered under the Limited Warranty?

1. Products located and/or operated outside the 50 states
2. Products purchased from anyone other than Howard Technology Solutions or an authorized reseller/agent
3. Expendable parts (Note: batteries provided for your notebook are covered for [1] year from the date we ship your system)
4. Accessories or peripherals not sold as part of a Howard branded system. The only accessories and peripherals covered that are sold as part of a Howard branded system are the monitor, mouse, and keyboard.
5. Software products
6. Routine cleaning, cosmetic, and mechanical wear
7. On-site support for monitor, keyboard, mouse, and speakers
8. Damage from the following:
 - a. Misuse, abuse, neglect, acts of God, fire, vandalism, civil disturbances, or war
 - b. Use outside of the product's design usage or parameters
 - c. Use of non-Howard Technology Solutions manufactured or sold parts
 - d. Installation of parts not approved by Howard Technology Solutions
 - e. Repair or replacement of non-Howard Technology Solutions authorized service partner

How do you get warranty service and support for your Howard branded product?

Depending on the terms of your agreement, you will receive a combination of one or more of the following: telephone support, parts-only replacement, carry-in service, or on-site service.

How do you get technical support?

With Howard Technology Solutions, you receive FREE telephone technical support 24/7, 365 days a year for as long as you own your Howard branded product. Our friendly, US-based team of experts will answer your questions about the product, hardware setup, or installation, all with telephone hold times typically less than one [1] minute. To expedite our service to you, please gather the following information before calling our Technical Support Center at (888) 323-3151

1. Product serial number(s) – located on the side or bottom of machine
2. Add-on boards of hardware installed on the product
3. Third-party software installed on the product
4. Operating system type and revision level
5. Content of any error message
6. Explanation of the problem and/or detailed, specific questions

Howard Industries, Inc. Technology Division Limited Warranty

1. Limited Warranty and/or Next Business Day (NBD) On-site Response

Howard Industries, Inc. (hereinafter "Howard") warrants that the Howard branded product(s) purchased by you will be free from defects in materials and/or workmanship under normal use for the purchased warranty period starting from the date of product shipment with the following EXCEPTIONS:

- a. Defective CDs, DVDs, diskettes or other software media that are delivered with your product will be replaced by Howard or its suppliers for twenty-one [21] days from the date you receive your product.
- b. Howard DOES NOT WARRANTY ANY SOFTWARE PRODUCTS, INCLUDING THE OPERATING SYSTEMS PREINSTALLED BY HOWARD TECHNOLOGY SOLUTIONS.
- c. Defective accessories or peripherals bundled with your Howard branded product (limited to the monitor, mouse, and keyboard) are subject to the terms of the warranty duration and type purchased from Howard Technology Solutions. All other defective accessories or peripherals, other than software, that are delivered with your product will be replaced by Howard or its suppliers for twenty-one [21] days.
- d. If purchased, next business day on-site warranty service is provided for the time period listed on the packing slip or invoice and begins the date of product shipment for the Howard Technology Solutions' products. The hours of next business day on-site warranty services will be provided Monday – Friday from 8:00AM to 5PM local time excluding Howard Technology Solutions' holidays as published on the Howard Technology Solutions' website at www.Howard.com. Second business day response times may be required in case of delays beyond Howard Technology Solutions' control (such as acts of God or calls reported to Technical Support after 3pm Central Standard Time). A Howard authorized third party vendor may provide on-site

service. Note: Some repairs may require the unit to be returned to Howard for depot service at an authorized service center.

- e. On-site warranty service is not available for Field Replaceable Units (FRU) such as monitors, keyboards, modular hard drives, mice, or similar external components of the product.

To obtain service under this limited warranty, you must contact Howard Technical Support within the warranty period. Technical Support personnel will work to resolve issues professionally and quickly, however, you must provide reasonable assistance in order to facilitate and/or receive support services. If Howard Technology Solutions is unable to correct the problem, they may authorize a replacement part or parts, on-site service, or a product replacement. ON-SITE SERVICE AND PRODUCT REPLACEMENTS ARE CONSIDERED OPTIONS OF LAST RESORT. All replaced parts must be returned to Howard. You will be invoiced for defective replacement parts not returned to Howard within two [2] weeks of receipt of the replacement parts.

Howard does not warranty damages or defects to the Howard product under the following conditions: misuse, abuse, neglect, acts of God, fire, vandalism, civil disturbances, or war, unauthorized service repair of the Howard product, damage from electrical power problems, usage of parts or components not supplied by Howard, shipping damage (other than during original shipment from Howard), failure to perform preventative maintenance, or damage caused by peripherals or software or from other external causes.

Howard will, under the warranty period, repair or replace defective parts with new or serviceable used parts. This determination will be at the sole discretion of Howard. Howard owns all removed and repaired parts from the Howard product. The repair or replacement of a Howard product does not extend the warranty of said computer product. Spare parts are warranted to be free from defects in material or workmanship for twenty-one [21] days or the remainder of the Limited Warranty Period (whichever is long) of the Howard product in which they are installed.

This limited warranty is extended only to the original purchaser and is non-transferable. In addition, this warranty is only valid within the United States of America. For this warranty to be valid, the product must have been purchased directly from Howard or from an authorized representative of Howard.

The warranties set forth herein are in lieu of any and all other warranties expressed or implied, including the warranties of merchantability and fitness for a particular use. Howard disclaims all other warranties, expressed or implied, including without limitation implied warranties of merchantability and fitness for a particular use. Except for the obligations set forth in this warranty statement, Howard shall not be liable for any defect, direct, special, incidental, or consequential damages including without limitation any liability for losses in profits, losses in revenue, losses in savings, losses of data, downtime, costs of capital, cost of replacement equipment (temporary or per permanent), costs of time, thirty parties' claims, or injuries to property.

The limited of the liability of Howard to repair its computer product after a reasonable amount of time and a reasonable number of attempts shall be the replacement of the Howard product or a refund of the original purchase of the computer product. The decision regarding replacement versus refund shall be at the sole discretion of Howard. The above options are the only remedies for any perceived breach of warranty by Howard.

In states that do not allow limitations on implied warranties or on the length of implied warranties, the above limitations may not apply to you. In states that do not allow for the exclusion or limitations and exclusions may not apply to you. This warranty gives you specific legal rights. To determine other rights you may have, review your applicable state laws.

2. Warranty Extensions and Upgrades

Howard Technology Solutions currently offers various options to extend or upgrade the Limited Warranty of the Howard branded product. This extension is only available for purchase during the first year warranty coverage period from Howard Technology Solutions. Call 1.888.912.3151 for pricing and availability.

3. Post-Warranty Parts Availability

Howard is available to assist with parts acquisition after the warranty period. Call 1.888.912.3151 for post-warranty assistance.

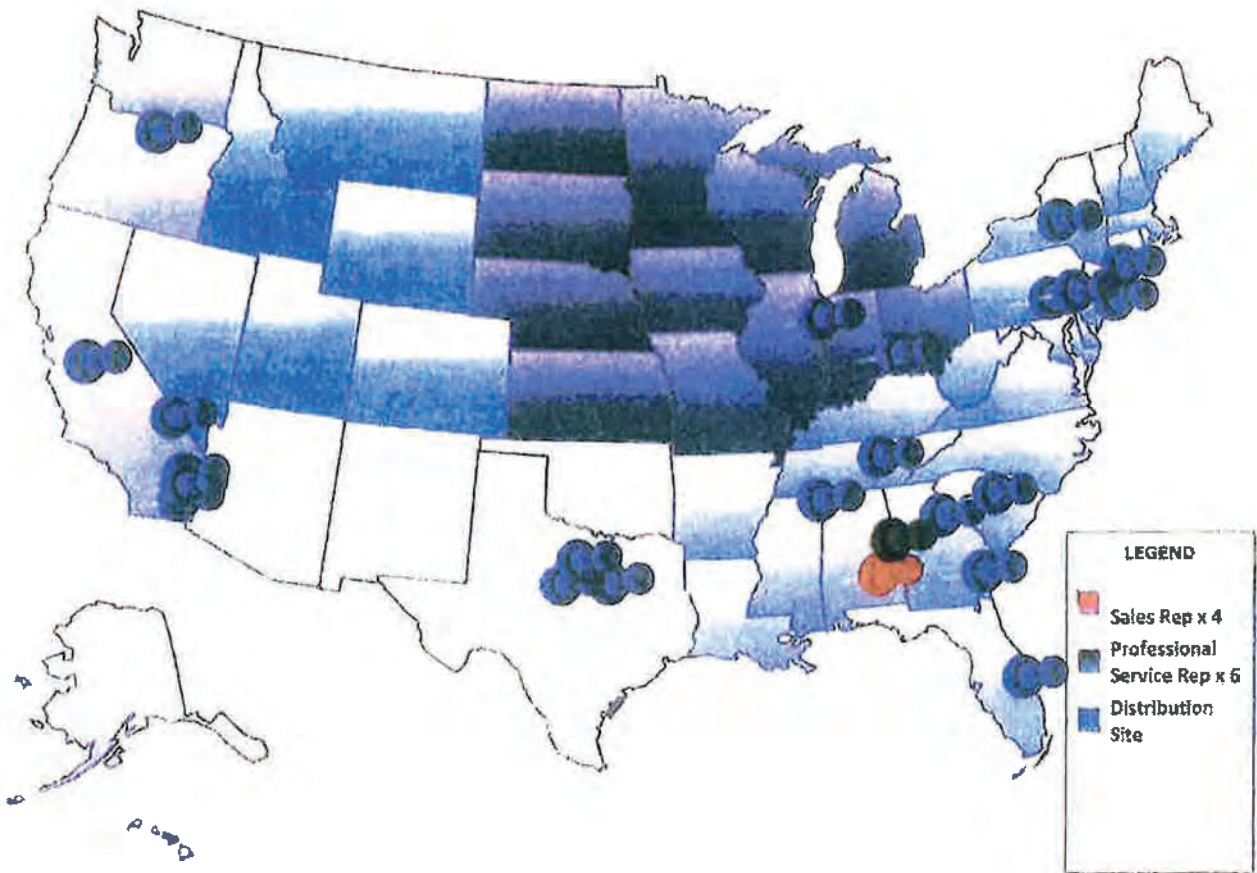
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888.912.3151 general • 601.399.5077 fax
888.323.3151 technical support

Sales, Service, and Distribution Map

Sales, Service, and Distribution Map for ACCS Contract



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Vendor Disclosure Form

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Certificate of Compliance

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Immigration Status Form

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P.O. Box 1590 • Laurel, MS 39441



888.912.3151 general • 601.399.5077 fax
888.323.3151 technical support

W9 Form

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E-Verify

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HOWARDTM
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Payment Terms

HOWARD™

TECHNOLOGY SOLUTIONS

DIVISION OF HOWARD INDUSTRIES, INC.

Network Services Help Desk Services Desktop Services Calling & Telecom Services Warranty & Maintenance Services

Payment Agreement

This Payment Agreement (this "Agreement"), made and entered into by and between Howard Technology Solutions, a division of Howard Industries, Inc., ("HTS") and _____ ("Customer"), is applicable to products and services Customer purchases from HTS.

In consideration of the mutual covenants and promises set forth herein and other good and valuable consideration, the receipt of which is hereby acknowledged, the parties agree as follows:

1. **Coverage.** The terms and conditions set forth herein will exclusively govern all of Customer's purchases of products and services from HTS, including in connection with installation or other projects ("Project(s)"), unless and until the parties agree in writing to different payment terms.
2. **Payment for Products.** Payment of 100% of the agreed-upon price for products, including equipment to be installed for a Project, will be due NET 30 upon delivery of the products to Customer's facility. Each shipment of products will constitute a separate sale, and Customer agrees to pay for the products delivered whether such shipment is in whole or partial fulfillment of the entire order.
3. **Payment for Services.** HTS reserves the right in its sole discretion to invoice monthly or progressively for labor and/or services depending on the nature of a particular Project or other circumstances.
4. **Credit Approval; Payments by Credit Cards.** All sales and payment terms are subject to credit approval and a credit limit set by HTS in its discretion. A 3% surcharge may be added to payments made by credit card.
5. **Changes.** HTS reserves the right in its discretion to add additional charges and/or to change the quoted price(s) for any Project in the event of circumstances warranting such modifications, including: (i) if for any reason Customer changes the start date of a Project within 5 days of the scheduled start date; (ii) if HTS is delayed during the installation or other stage of a Project as a result of lack of accessibility to necessary facilities or equipment, the presence or status of other trades or contractors, faulty or incompatible equipment that is not provided by HTS, or for any other reason beyond HTS's control or responsibility; (iii) if the scope of a Project, including as will typically be set forth in a mutually agreed-upon Statement of Work, is changed for any reason; (iv) if HTS's costs increase due to causes beyond its reasonable control, including imposition by the United States or any other country of new or higher tariff(s) or other similar tax(es), fee(s) or charge(s); or (v) if obstacles or limitations require the use of additional or different measures to achieve installation of equipment pursuant to the manufacturer's recommendations.
6. **Breach.** In the event Customer is in breach of the terms herein, HTS may in its discretion: (i) accelerate the due date of all outstanding invoices and require that all outstanding invoices, including any interest thereon, be immediately due and payable in full; (ii) stop all work under any order or Project until receipt of full payment or assurances of payment satisfactory to HTS; (iii) require prepayment for any other orders; and/or (iv) delay shipments. Late payments shall bear interest from and after the due date at a monthly rate equal to five percent (5%).

IN WITNESS WHEREOF, the undersigned do hereby execute this Payment Agreement as duly authorized officials of the respective parties hereto, as of the dates recorded below:

Customer:

By: _____

(Signature)

Name: _____

(Print)

Title: _____

Date: _____

Howard Technology Solutions, a division of
Howard Industries, Inc.

By: _____

(Signature)

Name: Josh Jelcoat

(Print)

Title: VP of Sales

Date: _____

For more information, visit www.howardcomputers.com

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P.O. Box 1590 • Laurel, MS 39441

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888.323.3151 technical support

www.Howard.com

A Division of Howard Industries, Inc.

Howard Specification Sheets

The WX390 Workstation

888.912.3151 | www.Howardcomputers.com



Blast your way through data-intensive work processes with Howard's newest workstation, the WX390. Increases in both design complexity and workloads for professionals in areas such as architecture, energy exploration, graphic arts, medical imaging, and manufacturing, demand ever-increasing levels of performance, scalability and reliability. Howard's new WX390 is built with that in mind. It's designed to handle professional-grade applications that require tremendous processing power, including 3D CAD-CAM, and CGI. It goes beyond the capabilities of standard computers, with 8th and 9th generation Intel® Core™ processors that deliver the raw power necessary to get real work done—real fast. And when work is done, the WX390 plays just as hard, so gaming is ultra-fast and super-smooth.

Affordable? Yes. At a cost of no more than some desktop computers, you can get the right system—Howard's WX390 workstation—at the right price.

Power up with the WX390 and experience the Howard Advantage!

9th and 8th Generation High-Performance



Intel, the Intel logo, Intel inside, Core i7, i5 & i3 are trademarks of Intel Corporation in the US and other countries.

WX390 Workstation

Specifications

Chipset

Intel® Z390

Operating System

Microsoft Windows® 10, all versions

Processors

Supports 9th/ 8th Gen Intel® Core™/ Pentium® Gold/ Celeron® processors for LGA 1151 socket

System Memory

Up to 64GB of DDR4 (4 Slots, DIMM)

Video

Integrated graphics processor-

Intel HD graphics support

Discrete graphics card available from the RTX Series to the Quadro Series

Audio

Realtek® high definition audio with twin built-in speakers

Network

Intel® I219V, 1 x Gigabit LAN controller

Internal Ports

- (1) 24-pin ATX main power connector
- (1) 8-pin ATX 12V power connector
- (1) 6-pin ATX 12V power connector
- (6) SATA 6Gb/s connectors
- (2) M.2 slots (1 M-Key slot, 1 E-Key slot)
- (2) USB 3.1 Gen1 connectors (supports additional 4 USB 3.1 Gen1 ports)
- (2) USB 2.0 connectors (supports additional 4 USB 2.0 ports)
- (1) 4-pin CPU fan connector
- (1) 4-pin water pump connector
- (5) 4-pin system fan connectors
- (1) Front panel audio connector
- (2) System panel connectors
- (1) Chassis intrusion connector
- (1) 4-pin RGB LED connector
- (1) Serial Port connector
- (1) Clear CMOS jumper
- (1) Parallel port connector
- (1) TPM module connector
- (1) Thunderbolt add-on card connector
- (1) Front OC button connector

External Ports

- (1) USB 3.1 Gen2 type A+C
- (1) USB 2.0
- (1) DisplayPort 1.4
- (2) USB 3.1
- (1) Audio= Mic, Speakers
- (1) LAN
- (1) Headphone jack
- (1) Multimedia card reader
- (1) PS/2 Combo
- (1) VGA
- (1) DVI-D

Chassis Technical Specifications

Dimensions:

19.29(H) x 8.46(W) x 16.77(D)

Drive Bays

3.5" (5) Internal (2) External

5.25" (3) External

Front Panel

USB=2, Audio=1 Line Out /1 Mic

PSU

550W (110 to 240W AC)

Upgradable to 1200W

*Product and availability subject to change

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- **FREE** customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

Contact Howard Technology Solutions for world-class service and support.

Online: www.howardcomputers.com/support

Phone: 1.888.323.3151

Email at tech@howardcomputers.com, or

Conventional mail at:

Howard Technology Solutions
36 Howard Drive
Ellisville, Mississippi 39437

The Howard Advantage!

With every Howard product purchase, you receive the following for **FREE!**

- Phone and web tech support for the **LIFE** of your system
- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute

IQ-W

POWERED BY HOWARD INNOVATION



Compact Professional Workstation

The surprise is in its size, because there is so much it can do! Howard's small form factor IQ-W workstation is ideal anywhere workspace is limited and powerful processors with professional-grade graphics are needed. For advanced CAD applications, engineering and graphic design, or banking and financial management, the IQ-W is a no-compromise solution—ultra-fast, multi-core technology that intelligently maximizes performance to match your workload.

The IQ-W is powered by Intel's Xeon® E-2286M; it offers up to 64GB DDR4, has Intel® professional integrated graphics, and supports NVIDIA GPUs. So, as effective as the IQ-W is as a media creation platform, if the mood strikes or the need is there, you'll find it's just as good for use as a main gaming system. The IQ-W is the small workstation that rates big in performance, reliability, scalability, and affordability.



IQ-W Workstation Specifications

Chipset: Intel® CM246

Operating System: Microsoft Windows® 10

Processors: Intel® Xeon® E-2286M

System Memory

Up to 64GB of DDR4 2666 MHz SO-DIMM
(2 Slots)

Video

Integrated Intel UHD Graphics P630
(3 display support or Supports Nvidia GPUs-
single slot)

Audio

7.1 digital; L+R+mIc (F); L+R+TOSLINK (R)

Storage

2 M.2 x4 Socket type 2280, 22110
(PCIe 3.0 X4)

Network

(1) 1GB based on Intel I219LM, 1 X 1GB
based on Intel I210-AT; Intel Wi-Fi 6 AX200

Internal Ports: (1) PCIe 3.0 X16

External Ports

(2) RJ45 1GB port
(6) USB 3.0 ports (2 Front, 4 Rear)
7.1 HD Audio Jacks
Headphone and Mic Jacks (Front)
(2) Thunderbolt 3 ports
(1) HDMI 2.0A port

Chassis Technical Specifications

Standard Case Dimensions:
9.37" X 8.50" X 3.77" (L x H x W)
Extended Case Dimensions:
14.6" X 8.43" X 5.04" (L x H x W)

Weight: 8.65 lbs

PSU: Standard 500W; Extended 650W

IQ-W Standard Case



Standard Case
Front View



8.50
inches



Standard Case
Back View

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- **FREE** customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

*Product and availability subject to change

Contact Howard Technology Solutions for world-class service and support.

Online: www.howardcomputers.com/support
Phone: 1.888.323.3151
Email at tech@howardcomputers.com, or
Conventional mail at:

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Ellisville, Mississippi 39437

IQ-W Extended Case



8.43
inches

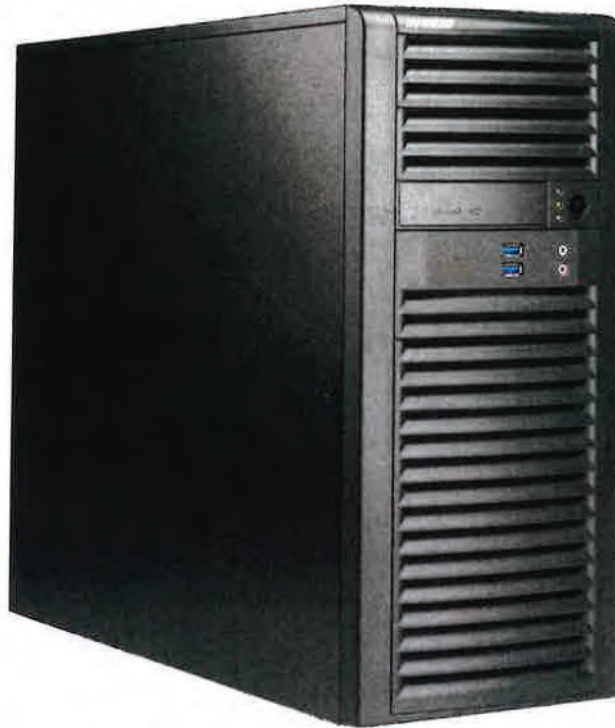


IQ-W Extended Case Back View



IQ-W Extended Case Front View

The SW4104 Workstation



Want a workstation with "Wow" factor? No need to wait—Howard's SW4104 is the one, and the "Wow" is in the way it works. It's powered by Intel's new Xeon® W-series processors that maximize performance and increase levels of security and reliability. Up to 18 cores enable you to process multiple resource-intensive applications simultaneously, such as advanced CAD applications, visualization, simulations, and rendering, without sacrificing performance. Turbo Boost Max 3.0 gives this high-performance system the speed you need and then some; it supports up to two Nvidia GPUs, has DDR4, and features Intel's Deep Learning Boost for pushing the boundaries of artificial intelligence (AI). This powerhouse is optimized for a wide range of workloads—graphic design, film editing, telemedicine image viewing, complex transactional analysis, and more. So, work, create, and explore like never before with Howard's SW4104 workstation.

*Power up with the SW4104 and experience
The Howard Advantage!*

Work, Create, and Explore



Intel, the Intel logo, the Intel Inside logo, and Xeon are trademarks of Intel Corporation or its subsidiaries.

SW4104 Workstation

Specifications

Chipset

Intel® C422

Operating System

Microsoft Windows® 10, all versions

Processors

Intel® Xeon W 2100/2200 Series

System Memory

Up to 512GB of DDR4 8 X DIMM DDR4
2666/2400/2133 RDIMM, LR-DIMM

Video

Supports multiple Nvidia GPUs (2 max)

Audio

ALC 1220 7.1 HD Audio

Storage

(6) SATA 6GB/s ports supports RAID 0, 1, 5, 10
(2) M.2 x4 Socket type 2280, 22110
(PCIe 3.0 x4)

Network

1GB based on Intel Phy I219LM, 1 x 5GB
based on Aquantia 5G AQC108

Internal Ports

(3) PCIe 3.0 x16 (8/16/16, 48 lanes)
(1) PCIe 3.0 x4 (x4 mode)

External Ports

(1) RJ45 1GB ports, 1 x RJ45 5GB port (Rear)
(6) USB 3.0 ports (2 Front, 4 Rear)
(2) USB 3.1 ports (2 Rear)
(2) USB 2.0 (2 Rear)
7.1 HD Audio Jacks
Headphone and Mic Jacks (Front)

Chassis Technical Specifications

Dimensions

20.68"D x 7.6"W x 16.7"H

Weight:

35.5lbs

Drive Bays

(2) External 5.25" drive bays
(4) Internal 3.5" drive bays

PSU

900W or 1200W

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- **FREE** customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

Contact Howard Technology Solutions for world-class service and support.

Online: www.howardcomputers.com/support

Phone: 1.888.323.3151

Email at tech@howardcomputers.com, or

Conventional mail at:

Howard Technology Solutions
36 Howard Drive
Ellisville, Mississippi 39437



*Product and availability subject to change

SW4108

POWERED BY HOWARD INNOVATION



Powerful, Dependable, Expandable

Power through professional work processes at spectacular speed with Howard's SW4108 tower workstation. Intel® 1st and 2nd Generation Xeon processors not only make it powerful, but they also make it flexible and scalable, allowing for expansion as your business grows and your needs change. The SW4108 delivers the exceptional reliability you depend on to do what you do—graphic design, film editing, telemedicine image viewing, financial transactions, teleconferencing, music production, advanced CAD applications, or something else. This tower of power features up to 24 cores, can use multiple graphic cards, and offers operational efficiencies that lead to higher productivity and improved cost of ownership. When you've got work to do, let Howard's SW4108 work for you!

SW4108 Workstation Specifications

Chipset

Intel® C621

Operating System

Microsoft Windows® 10, Windows® 2019

Processor

Intel® Xeon 1st/2nd Generation Scalable Family up to 24 cores (205W TDP)

System Memory

Up to 3TB of DDR4 2933/2666/2400 (12 DIMM slots)

Video

Supports multiple Nvidia GPUs (2 max)

Audio

7.1 HD Audio by Realtek ALC888S

Storage

(8) SATA 6GB/s ports supports RAID 0, 1, 5, 10
(4) M.2 Socket type 2280, 22110 (PCIe 3.0 X4)

Network

(1) 1GB based on Intel I210-AT
(1) 10GB based on Aquantia 10G
(1) Dedicated IPMI with Realtek RTL8211E PHY

Internal Ports

(4) PCIe 3.0 X 16
(3) PCIe 3.0 X 8 (in x16 slot)

External Ports

(1) RJ45 1GB ports,
(1) RJ45 10GB port (Rear Panel)
(6) USB 3.1 Gen 1 ports (2 Front, 4 Rear)
(2) USB 3.1 Gen 2 ports (1 rear Type A + 1 rear Type C)
7.1 HD Audio Jacks (rear)
(1) VGA (onboard video)
(1) Serial port

Chassis Technical Specifications

Dimensions:

25.5" D X 7.0" W X 17.8" H

Weight:

35.5lbs

Drive Bays:

(2) External 5.25" drive bays
(8) Internal 3.5" drive bays

PSU: 1000W (110V), 1200 (208V)

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

Contact Howard Technology Solutions for world-class service and support.

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Phone: 1.888.323.3151

Email at tech@howardcomputers.com, or

Conventional mail at:

Howard Technology Solutions
36 Howard Drive
Ellisville, Mississippi 39437



HOWARD
TECHNOLOGY SOLUTIONS



*Product and availability subject to change



WX2900

POWERED BY HOWARD INNOVATION

Scalable, Reliable, and Affordable Professional, high-performance workstations

Blaze through work processes like never before with one of the most powerful, scalable workstations Howard has ever offered, the WX2900. Powered by the latest Intel® X Series processors, it's designed to take on heavy workloads day after day, to work seamlessly with the data-intensive software applications used by professionals—video editors, architects, product designers, medical and research professionals, engineers and financial analysts. Whether your workforce is crunching complex calculations or manipulating sophisticated graphics, the WX2900 delivers the speed and high performance you need to complete the task at hand. Cutting-edge responsiveness allows applications to load faster and run more smoothly, and you can run more of them simultaneously, so you get more done in less time! Howard's WX2900 is the "power" workstation for real professionals.



WX2900

FEATURES AND SPECIFICATIONS

Chipset

Intel® X299

Operating System

Microsoft Windows® 10, 64-bit

Processors

Intel® Socket 2066 Core™ X-series processors

System Memory

Intel® Core™ X-series Processors:

6-Core—8 x DIMM, Max. 128GB, DDR4

4-Core—4 x DIMM, Max. 64GB, DDR4

Audio

Realtek® ALC S1220A 8-channel high-definition Audio

Network

Intel® I219V, 1 x Gigabit LAN Controller

Internal Ports

- (1) AAFP connector
- (2) Aura RGB strip header
- (2) USB 3.1 Gen 1 connectors; supports Additional 4 USB 3.1 Gen 1 port
- (1) USB 2.0 connector; supports 2 additional USB 2.0 ports
- (1) M.2 Socket 3 with M key, Type 2242/2260/2280 storage device support (SATA & PCIE 3.0 x 4 mode)
- (1) M.2 Socket 3 with M key, Type 2242/2260/2280/22110 storage device support (PCIE 3.0 x 4 mode)
- (8) SATA 6Gb/s connectors
- (1) CPU Fan connector
- (1) CPU OPT Fan connector
- (2) Chassis Fan connectors
- (1) AIO_PUMP connector
- (1) W_PUMP+ connector
- (1) Thunderbolt header
- (1) 24-pin EATX Power connector
- (1) 8 pin ATX 12V Power connector
- (1) 4-pin ATX 12V Power connector
- (1) System panel (Q Connector)
- (1) MemOK! button
- (1) Thermal sensor connector
- (1) Power-on button
- (1) Clear CMOS jumper
- (1) USB 3.1 Gen 2 front panel connector
- (1) CPU_OV jumper

External Ports

- (1) LAN (RJ45) port
- (2) USB 3.1 Gen 2 Type-A + USB Type-C™
- (4) USB 3.1 Gen 1
- (2) USB 2.0 (one port can be switched to USB BIOS Flashback)
- (1) Optical S/PDIF out
- (5) Audio jacks
- (1) USB BIOS Flashback Button

Chassis Technical Specifications

Dimensions 19.30 (H) x 7.5 (W) x 16.7 (D) (inches)

Drive Bays

3.5" (5) Internal (2) External
5.25" (3) External

Warranty & Support

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Email at tech@howardcomputers.com, or

Conventional mail: Howard Technology, 36 Howard Drive, Ellisville, Mississippi 39437

RDH310

POWERED BY HOWARD INNOVATION



Reduce Desktop Footprint—Increase Security

Increase your security profile and reduce your desktop footprint at the same time with Howard's RDH310 rackmount computer. Its rackmount chassis makes it ideal for installation in a security closet or network rack, which not only frees up workspace but also safeguards your hardware by assuring consistent power, protecting against dust, and facilitating proper air flow; so your computer runs safely and efficiently. The RDH310 is built for high performance, with 8th Generation Intel® Core™ processors and must-have features, such as DDR4 memory, Intel Turbo Boost 2.0, and Intel® Hyper-Threading (HT) Technology to speed up workflows and improve multitasking. You'll get more done in less time! The RDH310 delivers up to two and a half times better performance than previous models and supports Intel's integrated connectivity (CNVi), which allows for a much faster wireless connection. For price and performance, Howard's RDH310 is a clear winner!

RDH310

FEATURES AND SPECIFICATIONS

Chipset

Intel® H31C

Operating System

Microsoft Windows® 10, 64-bit

Processors

Intel® for 8th/9th Generation Core™
Core™ i7, Core™ i5, Core™ i3 and
Pentium® Celeron® processors

System Memory

(2) DIMM, max 32GB DDR4

Audio

Realtek® ALC 887 8-channel
High-definition

Network

Realtek RTL8111H
(1) Gigabit LAN

Internal Ports

(4) SATA 6Gb/s connectors
(1) PCIe 3.0/2.0 x16

External Ports

(1) PS/2 combo port
(1) VGA Port
(1) DVI-D
(1) HDMI
(1) LAN (RJ45) port
(2) USB 3.1 Gen 2 type-A (rear panel)
(2) USB 2.0 (front panel)
(3) Audio jacks

Chassis

Rackmount 1.3U with front mounting
brackets and 19" depth

Dimensions

21.25" X 2.30" x 19.00"

Drive Bays

(3) 3.5" Internal

Optical Drive Bays (optional)

(1) 5.25" front bay

PSU: 460W 80Plus



Warranty & Support

- Howard Technology Solutions' standard warranties apply.
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Ellisville, Mississippi 39437

H310

POWERED BY HOWARD INNOVATION



Low Profile

LPKB

Dimensions:
11.63"(H) x 3.75"(W) x 15.38"(D)
Drive Bays:
3.5" (2) Internal (2) External
5.25" (2) External
Front Panel:
(2) USB
(1) Audio Line Out/1 Mic
PSU:
300W (110 to 240V AC)



Upgradable

Three Form Factors



MICRO TOWER

MKB

Dimensions: 16.5" (H) x 6.8" (W) x 14.5" (D)
Drive Bays: 3.5" (2) Internal (2) External
5.25" (2) External
Front Panel: (2) USB; (1) Audio Line Out/1 Mic
PSU: 300W (110 to 240V AC)

AKB

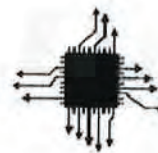
Dimensions: 19.30 (H) x 7.5 (W) x 16.7 (D)
Drive Bays: 3.5" (5) Internal (2) External
5.25" (3) External
Front Panel: (2) USB; (1) Audio Line Out/1 Mic
PSU: 300W (110 to 240V AC)
Upgradable to 1200W



Mini

MINI

Dimensions:
10.43"(H) x 3.5"(W) x 10.63"(D)
Front Panel:
(2) USB
(1) Audio Line Out/1 Mic
PSU:
300W (110 to 240V AC)



Immensely Powerful

Each unit is powered by
the latest Technology!

H310

FEATURES AND SPECIFICATIONS

Chipset

Intel® H310

Operating System

Microsoft Windows® 10, 64-bit

Processors

Supports 8th Generation Intel Core™ Processors, Pentium® Gold and Celeron®

Processors for Socket LGA1151

System Memory

Up to 32GB of DDR4 (2 Slots, DIMM)

Audio

Realtek® ALC 887 8 channel

High-definition

Network

Realtek RTL8111H, 1 x Gigabit LAN

Internal Ports

- (1) PCIe 3.0 x16 slot
- (2) PCIe 2.0 x1 slots
- (1) 24-pin ATX main power connector
- (1) 8-pin ATX 12V power connector
- (4) SATA 6Gb/s connectors
- (1) USB 3.1 Gen1 connector (supports additional 2 USB 3.1 Gen1 ports)
- (1) USB 2.0 connector (supports additional 2 USB 2.0 ports)
- (1) Clear CMOS jumper
- (2) Front panel connectors
 - (1) Serial port connector
 - (1) TPM module connector
 - (1) Chassis Intrusion connector
 - (1) Front panel audio connector
- (1) 4-pin CPU fan connector
- (1) 4 pin system fan connector

External Ports

- (1) DVI-D
- (1) VGA
- (1) HDMI
- (1) LAN (RJ45) port
- (2) USB 3.0 (Gen 1, type A-front)
- (2) USB 3.0 (Gen 1, type A-rear)
- (2) USB 2.0 (Front)
- (4) USB 2.0 (Rear)
- (3) Audio jacks
 - (1) MONO out header *3
 - (1) PS/2 Combo Port

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
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Ellisville, Mississippi 39437

H510 MKB

POWERED BY HOWARD INNOVATION



Perfect Blend of Performance and Economy

From taking care of business to watching movies and playing games online, Howard's H510MKB desktop computer is this year's choice for just the right mix of high performance and real economy—powerful enough to handle basic, everyday computing tasks and priced low enough to fit almost any budget. The H510MKB is powered by your choice of the latest Intel® processors to deliver strong, reliable performance with the lowest power consumption possible. It offers high-speed connectivity and features high-definition audio for a totally immersive experience; up to 64GB of DDR4, comprehensive cooling controls, and plenty of ports for connecting peripherals. The H510MKB combines cutting-edge technology with proven durability—full power in a three-quarter tower, so it takes up less room than its full-size counterparts. For work, home, or play, Howard's H510MKB desktop computer does what you need it to do—without breaking the bank.

Features and Specifications

Chipset Intel® H510

Operating System

Microsoft Windows® 10, All versions

Processors

Intel® Celeron to Intel core Series i3, i5, i7, and i9 10th and 11th gen

System Memory

Up to 64 GB of DDR4 (2 DIMM slots)

Display

- Supports HDMI 2.0b with HDR port, supports a maximum resolution of 4K 60Hz
- Supports DisplayPort 1.4 port, supports a maximum resolution of 5120x3200 60Hz
- Supports VGA port maximum resolution of 2048x1536 60Hz, 1920x1200 60Hz

Audio

Realtek® ALC 897 7.1-Channel High Definition Audio CODEC

Network

(1) Intel® I219V 1Gbps LAN controller

Internal Ports

- (1) 8-pin ATX 12V power connector
- (4) SATA 6Gb/s connectors
- (1) USB 3.2 Gen 1 5Gbps connector -supports additional 2 USB 3.2 Gen 1 5Gbps ports
- (1) USB 2.0 connector (supports additional 2 USB 2.0 ports)
- (1) 4-pin CPU fan connector
- (1) 4-pin system fan connector
- (1) Front panel audio connector
- (2) System panel connectors
- (1) Serial port connector
- (1) Chassis Intrusion connector
- (1) Clear CMOS jumper
- (1) TPM module connector

External Ports

- (2) USB 3.2 Gen 1
- (4) USB 2.0; (1) Mic/audio jack
- (1) DVI-D; (1) HDMI; (1) LAN; (1) VGA

Chassis Technical Specifications*

Dimensions

11.5(L) x 6.7(W) x 14.25(H) (inches)

Weight: 14lbs fully configured

PSU: Dependent on configuration

* (Cases are subject to change due to configuration and/or availability)



Affordable

Intel® 10th & 11th Gen

High Performance

Low Power Consumption

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support.

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Conventional mail at:

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Ellisville, Mississippi 39440

Q470MKB

POWERED BY HOWARD INNOVATION



Customizable, low cost computing

Take the high cost out of customized computing with the Q470MKB desktop from Howard. It gives you all the essential components for mainstream computing, such as Intel® core processors, up to 128GB of DDR4 memory, HDMI, high-speed network connectivity, and integrated Intel graphics, but lets you decide which features you need to satisfy your IT objectives, so you don't pay for things you won't use. In addition to being fully customizable, this energy-efficient system delivers the level of speed and responsiveness necessary to ensure a reliable connection even in environments with many connected devices. Keep productivity up and costs down with Howard's Q470MKB desktop computer.

Q470MKB

FEATURES AND SPECIFICATIONS

Chipset

Intel® Q470 with vPro

Operating System

Microsoft Windows® 10, All versions

Processors

Up to Intel® Core™ i9 10th Generation

System Memory

Up to 128 GB of DDR4 (4 slots, DIMMs)

Audio

Realtek® ALC 887 7.1-channel
High-definition audio

Network

Integrated Intel Gigabit Ethernet I219-LM

External Ports

- (4) USB 3.2 Gen 1
- (2) USB 2.0
- (1) Mic/audio jack
- (2) Display ports
- (1) HDMI
- (1) LAN
- (1) D-SUB
- (1) PS/2 Keyboard
- (1) PS/2 Mouse
- (3) Audio jacks

Chassis Technical Specifications*

Dimensions

14.25"L x 7"W x 17.2"H (inches)

Weight: 15lbs fully configured

PSU: 300W (110 to 240V AC)

*Cases are subject to change due to configuration and/or availability



Optional Optical Drive

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
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H410MKB

FEATURES AND SPECIFICATIONS

Chipset

Intel® H41C

Operating System

Microsoft Windows® 10, All versions

Processors

Supports 10th Generation Intel® Core™

System Memory

Up to 64 GB of DDR4 (2 DIMM slots)

Audio

Realtek® ALC 887 8-channel
High-definition

Network

Integrated Intel Gigabit Ethernet I219-LM

External Ports

- (2) USB 3.2 Gen 1
- (4) USB 2.0
- (1) Mic/audio jack
- (1) DVI-D
- (1) HDMI
- (1) LAN
- (1) VGA

Chassis Technical Specifications*

Dimensions

14.25"L x 7"W x 17.2"H (inches)

Weight: 15lbs fully configured

PSU: 300W (110 to 240V AC)

*Cases are subject to change due to configuration and/or availability



*Shown with optional PCIe graphics card



Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
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Conventional mail at:

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36 Howard Drive

Ellisville, Mississippi 39440

H410MKB

POWERED BY HOWARD INNOVATION



Customizable for cost-conscious clients

The clear choice for cost-conscious consumers this year is Howard's H410MKB desktop. This computer gives you all the essentials—features necessary for mainstream computing, such as Intel® Core processors, up to 64GB of DDR4 memory, HDMI, high-speed network connectivity, and integrated Intel graphics for realistic imagery. In addition to all of this and an energy-efficient design, it's customizable; you decide what you want and how much. This way, you don't pay for things you won't use, lowering the cost and making the H410MKB a tremendous value. Get just the right amount of power in a tower with Howard's H410MKB!

Pick a pint-sized PC that's power-packed and priced right!

Looking for a small, space-saving desktop computer with all the power and performance of a much larger system? Well, take a look at Howard's new H11 Mini. It's a desktop that's built for high-demand computing, but small enough to hold in one hand, so you get all the power without the tower! In addition to 6th Generation Intel® Core™ processors, it's packed with high performance features, such as DDR4 memory, integrated graphics, USB 3.1, and wireless network connectivity. The H11 Mini delivers up to two and a half times better performance than previous models, with triple the battery power, near silent operation, and low power consumption. It completes in both price and performance, and it's ready to use right out of the box! Whether you're trying to save space at home, fit more computers into your office or squeeze a media server into your entertainment center, Howard's H11 Mini is the deal!



Howard Technology Solutions recommends genuine Microsoft® Windows® 10 Professional.

The Howard Advantage!

With every Howard product purchase, you receive the following for **FREE!**

- ✓ Phone and web tech support for the LIFE of your system
- ✓ 100% US-based, English-speaking customer support 24/7/365
- ✓ Phone hold times < 1 minute

Feature	Benefits
CPU	Supports 6 th Gen Intel® Core™ / Pentium® / Celeron® processors for LGA 1151 socket
Integrated Gigabit NIC	Capable of high-speed network connectivity thanks to the integrated gigabit network port
Memory	Supports Up to 32GB of DDR4-2133 Memory
USB 3.1	Superspeed USB transfers up to twice the speed of 3.0



Intel, Intel Core™, Intel Celeron, and Intel Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and other countries.

Desktop - Howard H11 Mini

Feature	Specification
Chipset	Intel® H110
Supported Operating Systems	Microsoft® Windows® 7 & 10 (64 x 64)
Supported Processor Families	Core i7 / i5 / i3 / Pentium / Celeron (LGA1151)
System Memory	Up to 32GB of DDR4 (2 Slots, DIMM)
Video	Integrated Graphics Processor Intel® HD Graphics support
Audio	Realtek® ALC887 - 7.1-Channel, High Definition Audio CODEC *1
Network	Realtek® RTL8111H, 1 x Gigabit LAN Controller
Internal Ports	1 USB 2.0 connector; Supports additional 2 USB 2.0 1 USB 3.1 Gen1 connector; Supports additional 2 USB 3.1 Gen1 1 x 24-pin ATX main power connector 1 x 4-pin ATX 12V power connector 1 x 4-pin CPU fan connector 1 x 4-pin system fan connector 1 x front panel audio connector 2 x front panel connectors 1 x Serial port connector 1 x Chassis intrusion connector 1 x Clear CMOS jumper
External Ports Rear Panel	- 1 x PS/2 keyboard/mouse - 4 x USB 2.0; 2 x USB 3.1 Gen1 ports 1 x DVI-D; 1 x HDMI 1 x LAN (RJ45); 3 x audio jacks
Chassis Dimensions	10.4"(H) x 4.40"(W) x 9.10"(L) (inches) Drive Bays 3.5" Internal=1; External=1 USB=2; Audio=1, Line Out/1 Mic PSU 160W (110 to 240W AC)

Q: What is the benefit of ASUS EZ Flash 3?

A: ASUS EZ Flash 3 allows you to download and update to the latest BIOS through the Internet without having to use a bootable floppy disk or an OS based utility.

Q: What is SSD?

A: A solid-state drive (SSD) (also known as a solid state disk or electronic disk, though it contains no actual "disk" of any kind or motors to "drive" the disks) is a data storage device using integrated circuit assemblies as memory to store data persistently.

Q: Whom should I contact for support?

A: Call Howard Technology Solutions for world-class support and service, if there are any questions about this desktop. Customer support is available—

By phone at 1-888-323-3151

Online at <http://www.howardcomputers.com/support>,

Via email at tech@howardcomputers.com, or

Conventional mail at Howard Technology Solutions,
36 Howard Drive, Folsville, Mississippi, 39437.



Back Ports

Experience the Howard advantage

Product Upgrades

Finance your purchase with any or all of the following products or services. And feel free to contact us toll free at 888-912-3151 to discuss any questions or your specific needs!

- On site service
- Wireless keyboard and/or mouse
- External hard drive
- External multi card reader

Warranty & Support

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HOWARD™

888-912-3151

www.howardcomputers.com

HOWARD

888.912.3151 | www.Howardcomputers.com

The Frost All-in-One Computer



It's called the Frost, and it's Howard's newest affordable touchscreen, all-in-one. What's cool about it? Well, one thing is definitely the display—a full HD, anti-glare, touchscreen display that delivers crisp, clear imagery. But most impactful is the Frost's special coating that allows it to be cleaned and disinfected after each use to keep it free from bacteria and germs. The fact that it can be sanitized repeatedly, day-in and day-out, without sustaining damage like an ordinary computer would from wipes and harsh chemical agents makes the Frost ideal for multiple applications—medical clinic patient registration portals and nurse stations, school computer and science labs, as well as retail and business settings.

The Frost is powered by the latest Intel® iCore processors for ultra-fast data retrieval and superb graphics performance. Add to that, low power consumption, space-saver styling, and super-easy setup.

Get the full-featured, extra-fast Frost from Howard, and feel the difference!



Intel®, the Intel logo, Intel Inside, Core i7, i5 & i3 are trademarks of Intel Corporation in the US and other countries.

• Powerful • Affordable • Cleanable

The Frost All-in-One Specifications

Chipset
Intel® H310T

Operating System
Microsoft Windows® 10, All versions

Processors
Intel® for 8th Generation Core™ i7, Core™ i5, Core™ i3/Pentium®/Celeron® processors

System Memory
2 x 50-DIMM, Max. 32GB, DDR4
2666/2400/2133 MHz

Display
19" Full HD anti-glare (1920X1080)

Audio
Realtek® high definition audio
with twin built in speakers

Network
Intel® dual-band wireless-AC
9560 2x2 + Bluetooth 4.2

Internal Ports

- (1) USB 3.1 Gen 1 (to 5Gbps) connector
Supports 2 additional USB 3.1 ports
- (1) USB 2.0 port connector; supports
additional 1 USB 2.0 port
- (2) USB 2.0 connectors; supports 4
additional USB 2.0 ports
- (1) M.2 Socket 1 with E key, type 2230 Wi-Fi/BT
device support or PCIe, CNVi/USB mode
- (1) M.2 Socket 3 with M key, type 2260/2280
storage devices support (SATA & PCIe x4 mode)
- (1) COM port connector
- (2) SATA 6Gb/s connectors
- (1) SATA power connector
- (1) CPU Fan connector
- (1) Chassis fan connector
- (1) Front panel audio connector (AAFP)
- (1) Chassis intrusion connector
- (1) 2-pin internal DC power connector
- (1) Stereo speaker connector

External Ports

- (1) USB 3.1 type C
- (1) USB 2.0
- (1) HDMI 2.0
- (2) Mini DP
- (2) USB 3.0
- Audio— Mic, speakers
- (1) LAN
- (1) Headphone jack
- (1) Multimedia card reader

Chassis Technical Specifications
All-in-One



Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- **FREE** customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

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Conventional mail at:

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Ellisville, Mississippi 39437

FAQs

Q: Is an M.2 SSD the same as an mSATA SSD?

A: No, they are different; M.2 supports both SATA and PCIe storage interface options, while mSATA is SATA only. Physically, they look different and cannot be plugged into the same system connectors. The picture below shows an M.2 SSD and an mSATA SSD (you can see the connector is different, as are their card sizes):



Q: Why are there different lengths for M.2 SSDs?

A: There are two reasons for the different lengths of M.2 SSDs:

1. The different lengths enable different SSD drive capacities; the longer the drive, the more NAND Flash chips that can be mounted on it, in addition to a controller and possibly a DRAM memory chip. The 2230 and 2242 lengths support 1-3 NAND Flash chips while the 2280 and 22110 support up to 8 NAND Flash chips, which can enable a 1TB SSD in the largest M.2 form factors.
2. Socket space in the system board can limit the M.2 size: Some notebooks can support an M.2 for caching purposes, but only have a small space that will accommodate only a 2242 M.2 SSD (2230 M.2 SSDs are smaller still, but not needed in most cases where 2242 M.2 SSDs will fit).

The Howard Advantage!

With every Howard product purchase, you receive the following for **FREE!**

- Phone and web tech support for the LIFE of your system
- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute



High performance; low price, and low power consumption

Performance and price share center stage in Howard Technology Solutions' latest production, the new H11 desktop computer, and reviews are exceptional! Powered by super fast, energy-efficient Intel® processors, the H11 expertly balances high computing performance with low power consumption, which, in addition to a low price point, makes the H11 ideal for use in business applications, training facilities, schools and computer labs –anywhere budget is a consideration. Additionally, the H11 offers a combination of top performance features, such as HDMI, a 1TB hard drive, DVI-D and D-sub ports for multiple displays; USB 3.0, up to 32GB DDR4 memory, and ultra-stable 5X Protection II for advanced hardware protection. Howard's new H11 debuts with more power, more storage, and more features than comparable models. Enjoy the performance!

Howard Technology Solutions recommends genuine Microsoft® Windows® 10 Professional.

The Howard Advantage!

With every Howard product purchase, you receive the following for FREE!

- ✓ Phone and web tech support for the LIFE of your system
- ✓ 100% US-based, English-speaking customer support 24/7/365
- ✓ Phone hold times < 1 minute

Feature	Benefits
Intel® Socket 1150	Intel® 6 th generation Core™ i7, Core™ i5 and Core™ i3 processors
Integrated G-gigabit NIC	Capable of high-speed network connectivity thanks to the integrated gigabit network port
USB 3.0 Boost	With USB 3.0 Boost technology, a USB device's transmission speed is significantly increased - up to 170%, adding to already fast USB 3.0 performance.
SATA 6.0	Supports SATA 6.0 Hard Drive Connections

Low Profile Chassis

Dimensions: 3,8 (H) x 13 (W) x 16,00 (D) (inches)



Intel, Intel Core™, Intel Inside are trademarks or registered trademarks of Intel Corporation in the U.S. and other countries.



Desktop - Howard H11

Feature	Specification
Chipsel	Intel® H11
Supported Operating Systems	Microsoft® Windows® 10 and 7
Supported Processor Families	Supports the Intel® Core™ i7, Core™ i5, and Core™ i3 processors, as well as Pentium and Celeron (LGA1151)
System Memory	Up to 32GB of DDR4 (2 slots, DIMM)
Video	Intel® HD graphics support
Audio	Realtek® ALC887 8-Channel high definition audio CODEC *1
Network	Realtek® RTL8111H, 1x Gb LAN controller
Internal Ports	1x USB 3.0 connector, supports additional 2 USB 3.0 ports 1x USB 2.0 connector, supports additional 2 USB 2.0 ports 1x LPT header 1 x COM port 4x SATA 6Gb/s connectors 1x CPU fan connector (1 x 4-pin) 1x chassis fan connector (1 x 4-pin) 1x 24 pin ATX power connector 1x 4 pin ATX 12V power connector 1x front panel audio connector (AAFP) 1x internal speaker connector 1x system panel 1x chassis intrusion connector 1x 14-1 pin TPM connector 1x PCIe 3.0/2.0 x1 (x16 mode) 2x PCIe 2.0 x1 & 1x PCI
External Ports (Rear Panel)	1 x PS/2 keyboard (purple) 1 x PS/2 mouse (green) 1 x DVI-D 1 x D-Sub 1 x LAN (RJ45) port(s) 2 x USB 3.0 (blue)

Q: What is the Benefit of ASUS EZ Flash?

A: ASUS EZ Flash 3 allows you to download and update to the latest BIOS through the Internet without having to use a bootable floppy disk or an OS-based utility.

Q: Whom should I contact for support?

A: Call Howard Technology Solutions for world-class support and service. If there are any questions about this desktop, Customer support is available—

By phone at 1.888.373.3151

Online at <http://www.howardcomputers.com/support>

Via email at tech@howardcomputers.com, or

Conventional mail at Howard Technology Solutions,

36 Howard Drive, Ellisville, Mississippi, 39437.

H11	Chassis Technical Specifications
MKB	Dimensions: 14.25"(H) x 7"(W) x 17.2"(D) 3.5" Drive Bays: Internal=2, External=2 5.25" Drive Bays: External=2 Front Panel: USB=2, Audio=1 Line Out / 1 Mic PSU: 300W (110 to 240W AC)
MKB Wireless	Dimensions: 14.6 (H) x 7.1 (W) x 14.3 (D) (inches) 3.5" Drive Bays: Internal=1, External=2 5.25" Drive Bays: External=2 Front Panel: USB=2, Audio=1 Line Out / 1 Mic PSU: 300W (110 to 240W AC)
AKB	Dimensions: 14.25"(H) x 7"(W) x 17.2"(D) 3.5" Drive Bays: Internal=3, External=2 5.25" Drive Bays: Internal=0, External=2 Front Panel: USB=2, Audio=1 Line Out / 1 Mic PSU: 300W (110 to 240W AC), Upgradable to 420W
LPKB	Dimensions: 3.8 (H) x 13 (W) x 16.00 (D) (inches) 3.5" Drive Bays: Internal=2, External=1 5.25" Drive Bays: External=1 Front Panel: USB=4, Audio=1 Line Out / 1 Mic PSU: 300W (110 to 240W AC)

Experience the Howard advantage

Product Upgrades

Enhance your purchase with any or all of the following products or services. And feel free to contact us toll free at 888-912 3151 to discuss any questions or your specific needs!

- On-site service
- Wireless keyboard and/or mouse
- External hard drive
- External multi-card reader

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- **FREE** customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

HOWARD

888.912.3151

www.howardcomputers.com

HOWARD

The H310 Mini Desktop Computer

888.912.3151 | www.Howardcomputers.com



- **Video:** Supports up to three displays simultaneously
- **Anti-Moisture:** Innovative moisture-resistant coating protects from corrosion
- **Trusted Platform Module (TPM)** Hardware based security offers better data protection, enhances network security, protects digital identities and ensures platform integrity.
- **EZ Debug LED:** Easiest way to troubleshoot

Looking for a small, space-saving desktop computer with all the power and performance of a much larger system? Well, take a look at Howard's new H310 Mini. It's a desktop that's built for high-demand computing, but small enough to fit just about anywhere.

In addition to 8th Generation Intel® Core™ processors, this system is packed with high-performance features, such as DDR4 memory, integrated graphics, USB 3.1, and wireless network connectivity. The H310 Mini delivers up to two and a half times better performance than previous models, with triple the battery power, near silent operation, and low power consumption. It competes in both price and performance, and is ready to use right out of the box! Whether you're trying to save space at home, fit more computers into your office or squeeze a media server into your entertainment center, the Howard H310 Mini is the one!

Pint-sized—Power-packed—Priced Right!

Intel, the Intel logo, Intel Inside, Core™, i5 & i3 are trademarks of Intel Corporation in the US and other countries.



H310 Mini Desktop Specifications

Chipset
Intel® H310

Operating System
Microsoft Windows® 10, 64-bit

Processors
Supports 8th Generation Intel® Core™ processors, and Intel® Pentium® Gold and Celeron® processors for Socket LGA1151

System Memory
(2) DDR4 memory slots, support up to 32Gb

Audio
Realtek® ALC 887 8-channel
High-definition CODEC

Network
Realtek RTL8111H Gigabit LAN

Internal Ports
(1) PCIe 3.0 x16 slot
(1) M.2 Socket Key E connector for an Intel® CNVi wireless module only (CNVi)
(4) SATA 6Gb/s ports
(1) M.2 slot (Key M)
Supports up to PCIe 2.0 x4 and SATA 6Gb/s, 2260/ 2280 storage devices

External Ports
Display port
PS/2 combo port
LAN Port
(3) USB 2.0 port
HD audio connectors
DVI-D port
(2) USB 3.1 Gen1

Chassis Technical Specifications

(Cases subject to change due to configuration and/or availability)

H310 Mini!

Dimensions
10.4"(H) x 4.40"(W) x 9.10"(L) (inches)
Drive Bays 3.5"
Internal: 1; External-1
USB-2 x 3.0; Audio-1, Line Out/1 Mic
PSU 160W (110 to 240W AC)

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

Contact Howard Technology Solutions for world-class service and support.

Online: www.howardcomputers.com/support
Phone: 1.888.323.3151
Email at tech@howardcomputers.com, or
Conventional mail at:
Howard Technology Solutions
36 Howard Drive
Ellisville, Mississippi 39437



FAQs

Q: Is an M.2 SSD the same as an mSATA SSD?

A: No, they are different. M.2 supports both SATA and PCIe storage interface options, while mSATA is SATA only. Physically, they look different and cannot be plugged into the same system connectors. The picture below shows an M.2 SSD and an mSATA SSD (you can see the connector is different, as are their card sizes):



Q: Why are there different lengths for M.2 SSDs?

A: There are two reasons for the different lengths of M.2 SSDs.
1. The different lengths enable different SSD drive capacities; the longer the drive, the more NAND Flash chips can be mounted on it, in addition to a controller and possibly a DRAM memory chip. The 2230 and 2242 lengths support 1-3 NAND flash chips while the 2280 and 22110 support up to 8 NAND flash chips, which can enable a 1TB SSD in the largest M.2 form factors.
2. Socket space in the system board can limit the M.2 size. Some notebooks can support an M.2 for caching purposes, but only have a small space that will accommodate only a 2242 M.2 SSD (2230 M.2 SSDs are smaller still, but not needed in most cases where 2242 M.2 SSDs will fit)

The Howard Advantage!

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- Phone and web tech support for the LIFE of your system
- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute

IQN1

POWERED BY HOWARD INNOVATION



Value-Priced AIO with Easy-Swap System

Got more than you bargained for and a bargain to boot with Howard's IQN1 computer! The IQN1 all-in-one provides a value-priced, space-saving alternative to traditional desktops. It delivers optimal performance at the lowest power, which translates into reduced energy costs for you, with cool-running, near-silent performance that adds to its appeal. It features powerful Intel® Core processors, up to 16GB of memory, 1920x1080 full HD, and Dolby speakers. But that's not all. The IQN1's Easy Swap system allows you to upgrade your PC any time you feel the need. Simply remove the four screws on the back panel; swap out the compute element, and voila! It's a new computer. Howard's IQN1 has an ultra-small footprint that makes it an easy fit anywhere space is at a premium; it's reliable and affordable, and has a solid warranty. The IQN1 is a real bargain!

IQN1

FEATURES AND SPECIFICATIONS

Chipset

Intel® SOC chipset

Operating System

Microsoft Windows® 10, all versions

Processors

Up to Intel® Core i7

System Memory

Up to 16GB of memory

Display

1920x1080 High-Definition

Audio

(2) 2W Dolby speakers

Network

(Optional) Intel® dual-band wireless-AC 9560 2x2+ Bluetooth 5.0

External Ports

- (5) USB 3.0 USB TYPE A
- (1) HDMI (output)
- (1) HDMI (input)
- (1) Intel 1219V Gigabit LAN Controller

N1 Chassis

Dimensions with base

17"(H) x 21.5"(W) x 10"(D) (inches)

Dimensions without base

12.6"(H) x 21.5"(W) x 1.5"(D) (inches)

Weight

15.2lbs Fully configured

Webcam: Retractable 2.0MP camera

Contact Howard for world-class service and support— Online at:

www.howardcomputers.com/support

Phone: 1.888.323.3151

Email at tech@howardcomputers.com.

or Conventional mail at:

HOWARD TECHNOLOGY SOLUTIONS | 36 Howard Drive, Ellisville, MS 39437 | 888.912.3151 ! www.howardcomputers.com



EASY SWAP SYSTEM

Want to upgrade? Simply remove four the screws on the back pane! and swap out the compute element. Voila! It's a new computer.



Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

Small. Stable. Affordable.

Small can do it all—if it's Howard's new IQ-K mini desktop computer. From focusing on work to playing games and streaming movies, the IQ-K is customizable and powerful enough to handle all your computing needs with ease, yet small enough to fit in the palm of your hand. It's powered by the latest dual-core 10th Generation Intel® Core™ i3 processor; has a solid-state hard drive, dual-array front microphones, DDR4 memory, and support for 4K at 60 Hz via an HDMI 2.0 port. What that means for you is this: Howard's IQ-K is super-fast and produces incredible visuals that breathe life into every single image. For personal use or business needs, the IQ-K provides you with all the full-functioning, high performance necessary to do what you want to do—set up video surveillance, advertise and inform with digital signage, or create a complete home entertainment system. It's all up to you.

The new IQ-K



only
4-inches wide

Howard Technology Solutions recommends genuine Microsoft® Windows® 10 Professional.

The Howard Advantage!

With every Howard product purchase, you receive the following for **FREE!**

- ✓ Phone and web tech support for the LIFE of your system
- ✓ 100% US-based, English-speaking customer support 24/7/365
- ✓ Phone hold times < 1 minute



Intel, Intel Core™ i3, i5, i7, and Intel inside are trademarks or registered trademarks of Intel Corporation in the U.S. and other countries.

Feature	Benefits
Processor	Dual-core 10 th Generation Intel® processor lets you start faster and work longer, and it supports higher-resolution graphics--great for gaming!
Storage	M.2 22x42/80 (key M) slot for SATA3 or PCIe X4 Gen3 NVMe or AHCI SSD SSDs make virtually no noise at all; they allow PCs to boot and launches apps faster and increase overall performance.
Memory	Up to 32GB of DDR4-2133 Increased data transfer speed for peak performance and lower power consumption than DDR3
Audio	Up to 7.1 surround audio via mini HDMI and mini display port
Graphics	Intel® Kaby Lake HD 620 integrated graphics

Feature	Specification
Chipset	Intel® SOC chipset
Supported Operating Systems	Microsoft® Windows® 10, 8.1, 8, and 7 86 x 64
Supported Processor Families	Intel® Intel Celeron J3455, Intel Core i3-7100U, Intel Core i5 7260U, and Intel Core i7-7567U
System Memory	Up to 32GB of DDR4-2133 (2 Slots, SODIMM)
Video	Intel® HD Graphics 620
Audio	Up to 7.1 surround audio via mini HDMI and mini display port
Network	Intel® I219V, 1 x Gigabit LAN controller Intel wireless-AC 8265 soldered-down, IEEE 802.11ac 2x2 + Bluetooth
Internal Ports	M.2 22x42/80 (key M) slot for SATA3 or PCIe X4 Gen3 NVMe or AHCI SSD Micro SDXC slot with UHS-I support 2x internal USB 2.0 via header Front Consumer Infrared port 2x front USB 3.0 ports (one charging)
External Ports	2x rear USB 3.0 1x HDMI; 2.0 port with 4K at 60Hz 1x USB 3.1 Gen 2 (10 Gbps) and mini display port 1.2 via USB-C
Chassis Technical Specifications	
Dimensions	4.53 x 1.38 x 4.37 (inches)
Weight	2.5 lbs
PSU	19V, 65W power brick

Q: Is an M.2 SSD the same as an mSATA SSD?

A: No, they are different; M.2 supports both SATA and PCIe storage interface options, while mSATA is SATA only. Physically, they look different and cannot be plugged into the same system connectors. The picture below shows an M.2 SSD and an mSATA SSD (Both connectors and card sizes are different):



Q: Why are there different lengths for M.2 SSDs?

A: Two reasons: 1. The different lengths enable different SSD drive capacities; the longer the drive, the more NAND Flash chips can be mounted on it, in addition to a controller and possibly a DRAM memory chip. The 2230 & 2242 lengths support 1-3 NAND Flash chips while the 2280 & 22110 support up to 8, which can enable a 1 TB SSD in the largest M.2 form factors. 2. Socket space in the system board can limit the M.2 size: Some notebooks can support an M.2 for caching purposes, but have a small space that will accommodate only a 2242 M.2 SSD.

Q: Whom should I contact for support?

A: Call Howard Technology Solutions for world-class support and service, if there are any questions about this desktop. Customer support is available—
online at <http://www.howardcomputers.com/support>,
via email at tech@howardcomputers.com,
by phone at 1.888.323.3151, or
conventional mail at Howard Technology Solutions,
36 Howard Drive, Ellisville, Mississippi, 39437.



Back Ports
Core i3

Experience the Howard advantage.

Product Upgrades

Enhance your purchase with any or all of the following products or services. And feel free to contact us toll free at 888-912-3151 to discuss any questions or your specific needs!

- On-site service
- Wireless keyboard and/or mouse
- External hard drive
- External multi-card reader

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- **FREE** customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

HOWARD

888.912.3151 | www.Howardcomputers.com

The Q370 Desktop Computer



Step up to 8th Generation processing for unrivaled PC performance without spending a bundle! It's possible with Howard's new Q370 desktop computer. Not only does it deliver faster CPU performance than any of its predecessors, but it also enables premium 4K content, allowing you to see new colors with Wide Color Gamut for eye-popping visuals. The Q370's business-efficient chipset gives you the high-performance typical of a workstation, without the cost. It also introduces Optane memory with intelligent software that provides performance improvements and accelerates system responsiveness, so apps launch faster and backups are finished in a flash! The Q370 comes packed with USB 3.0 and 2.0 ports, allowing for a range of USB devices to be used at once.

Whether you use the Q370 for business or pleasure, this system is designed to take you where you want to go.

• Security • Reliability • Manageability



Intel, the Intel logo, Intel Inside, Core i7, i5 & i3 are trademarks of Intel Corporation in the US and other countries.

Q370 Desktop Specifications

Chipset

Intel® Q370

Operating System

Microsoft Windows® 10, 64-bit

Processors

Intel® for 8th Generation Core™ Core™ i7, Core™ i5, Core™ i3/Pentium®/Celeron® processors

System Memory

4 x DIMM, max 64GB, DDR4

Video

Integrated graphics processor- Intel® HD graphics support

Audio

Realtek® ALC 887 8-channel
High-definition CODEC

Network

Intel® I219LM, 1 x Gigabit LAN

Internal Ports

- (1) M.2 Socket 3 with M key, type 2242/2260/2280 storage devices support (SATA & PCIe 3.0 x 4 mode)
- (1) M.2 Socket 3 with M Key, type 2242/2260/2280 storage devices support (PCI-E mode only)
- (1) LPT header
- (2) COM ports connectors
- (6) SATA 6Gb/s connectors
- (1) M.2 Socket 1 with E key, type 2230 for Wi-Fi/BT devices support or PCIe/USB mode
- (1) PCIe 3.0/2.0 x16
- (2) PCIe 3.0/2.0 x1
- (1) PCI

External Ports

- (1) PS/2 keyboard (purple)
- (1) PS/2 mouse (green)
- (1) D Sub
- (2) DisplayPort
- (1) HDMI
- (1) LAN (RJ45) port
- (4) USB 3.1 Gen 2 type-A
- (2) USB 2.0
- (3) Audio jacks

Back Ports



Chassis Technical Specifications

(Cases subject to change due to configuration and/or availability)

MKB

Dimensions: 14.25"(H) x 7"(W) x 17.2"(D)
3.5" Drive Bays: Internal=2, External=2
5.25" Drive Bays: External=2
Front Panel: USB=2,
Audio=1 Line Out /1 Mic
PSU: 300W (110 to 240W AC)

LPKB

Dimensions: 3.8"(H) x 13"(W) x 16.00"(D)
3.5" Drive Bays: Internal=2, External=1
5.25" Drive Bays: External=1
Front Panel: USB=4, Audio=1 Line out /1 Mic
PSU: 300W (110 to 240W AC)



AKB

Dimensions: 19.30"(H) x 7.5"(W) x 16.7"(D)
3.5" Drive Bays: Internal=5, External=2
5.25" Drive Bays: Internal=0, External=3
Front Panel: USB=2, Audio=1 Line Out /1 Mic
PSU: 300W (110 to 240W AC), Upgradable? to 1200W

Warranty & Support

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Conventional mail at:

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FAQs

Q: Is an M.2 SSD the same as an mSATA SSD?

A: No, they are different; M.2 supports both SATA and PCIe storage interface options, while mSATA is SATA only. Physically, they look different and cannot be plugged into the same system connectors. The picture below shows an M.2 SSD and an mSATA SSD (you can see the connector is different, as are their card sizes):



Q: Why are there different lengths for M.2 SSDs?

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1. The different lengths enable different SSD drive capacities; the longer the drive, the more NAND Flash chips that can be mounted on it, in addition to a controller and possibly a DRAM memory chip. The 2230 and 2242 lengths support 1-3 NAND Flash chips while the 2280 and 22110 support up to 8 NAND Flash chips, which can enable a 1TB SSD in the largest M.2 form factors.
2. Socket space in the system board can limit the M.2 size: Some notebooks can support an M.2 for caching purposes, but only have a small space that will accommodate only a 2242 M.2 SSD (2230 M.2 SSDs are smaller still, but not needed in most cases where 2242 M.2 SSDs will fit).

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- Phone hold times < 1 minute

HOWARD

Howard-DR Mini Desktop

Space-saving, energy-efficient, full-featured computer

Powerful 8th Generation Intel® processors

In the world of computers, minis are in! And just so you know, what makes a mini small doesn't make it less powerful. Consider Howard's new DR Mini. Powered by 8th Generation Intel® processors, this full-featured mini delivers the same reliability and high-speed performance as larger, more costly computers and manages demanding applications just as efficiently. It's compact, so placement is not a problem; in fact, it can easily be VESA-mounted to the back of a monitor, so it doesn't take up valuable work space, a feature that makes it perfect for use on medical carts. Additionally, the DR has lots of USB ports—nine to be exact—for connecting peripherals, such as digital scanners and specialty printers, which works especially well for medical applications where devices need to be portable and easily upgradable. Advanced hardware safeguards of 5X Protection II ensure long-term durability, so you can expect the max from this mini—the DR Mini from Howard.

Ideal for use on medical carts, in computer labs, home, and office—anywhere space is at a premium!

Thin Mini-ITX

Designed and engineered to support business environments where operational efficiency and effectiveness count—compact, capable, Thin Mini-ITX based all-in-one PC

LANGuard

Hardware-level networking protection for total reliability—greater tolerance to static electricity and improved protection against surges

5X Protection II

Advanced hardware safeguards for all-round protection—

- Precise power control and long-lasting stability
- Enhanced DRAM overcurrent protection
- Strong ESD protection for extended component lifespan
- High-quality solid state capacitors for 2.5X longer lifespan
- 3X more durable corrosion-resistant coating

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- Phone hold times < 1 minute



*Intel® Core™ i3, i5, i7, and Intel® Inside™ are trademarks or registered trademarks of Intel Corporation or its subsidiaries in the United States and other countries.



Howard-DR Mini Desktop Specifications

Chipset

Intel® H310

Operating System

Microsoft Windows® 10 Pro 64-bit

Supported Processor Families

Intel® 8th and 9th generation core i7, i5, i3/Pentium Core™ i7, Core i5, Core i3/Pentium®/Celeron®

System Memory

Up to 32GB of DDR4 (2 Slots, DIMM)

Audio

Realtek® ALC887 7.1-channel high definition audio CODEC

Network

Realtek® RTL8111H, (1) Gigabit LAN
Intel® I219V, 1 x Gigabit LAN

Wireless

Intel Wireless-AC 9260/9560

Internal Ports

- (1) M.2 Socket M Key, type 2260/2280 Sata/PCIe
- (1) Sata 6Gb/s port

External Ports

- (1) Display port
- (1) HDMI
- (1) Lan (RJ45) port
- (7) Rear USB 2.0
- (2) Rear USB 3.0 (blue)
- (1) DC power Connector

Chassis Technical Specifications

Dimensions: 7.4"(H) x 7.5"(W) x 2"(D)

Weight

Approximately 5lbs

Power Supply

90W External power adapter

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE** customer and technical support to purchaser via telephone or web for the life of the system.
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Conventional mail at:

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Ellisville, Mississippi, 39437

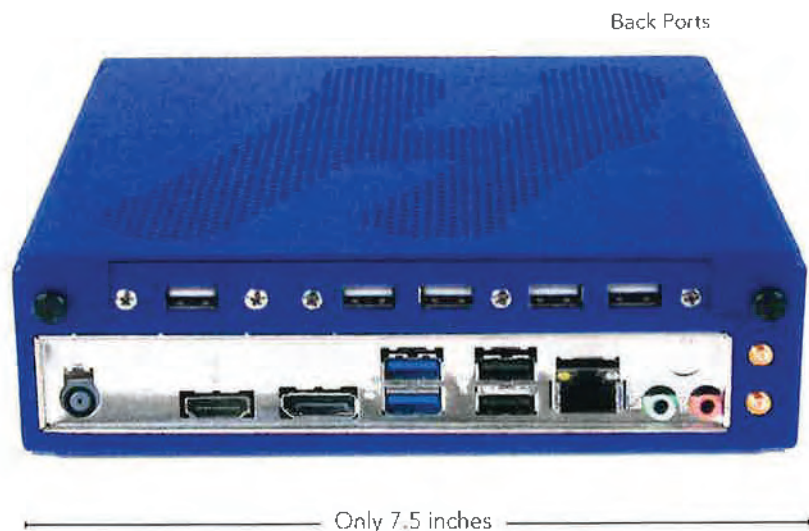
FAQs:

Q: What is the benefit of ASUS EZ Flash?

A: ASUS EZ Flash 3 allows you to download and update to the latest BIOS through the Internet without having to use a bootable floppy disk or an OS-based utility.

Q: What are the benefits of LANGuard?

A: LANGuard is hardware-level networking protection that employs signal-coupling technology and premium anti EMI surface-mounted capacitors, ensuring a more reliable connection and better throughput, plus electrostatically-guarded and surge-protected components for greater tolerance to static electricity and improved protection against surges.



HOWARD

888.912.3151 | www.Howardcomputers.com

The GKX Laptop for Business



Stay ahead of the curve and discover the possibilities of using Virtual Reality (VR) for your business. Start with Howard's VR-ready, portable workstation, the GKX laptop. From training in specialized fields to manufacturing and showcasing products and services, VR can take your business to the next level. Powered by Intel's 8th generation six core processors, the GKX is ultra fast, super powerful, and innately responsive. It features DDR4, high-definition audio, and Nvidia GeForce GTX graphics for stunningly clear images.

The GKX has an extremely thin form factor at just .86 inches—that makes it lightweight and easy to carry. It has a premium, full size lightswitch keyboard with 10-key numeric keypad, and—just for fun—a customizable RGB light bar. This beautiful system also features an impressive thermal design that ensures it stays as cool as it looks.

Affordable? Yes. At a cost of no more than some desktop computers, you can get the right system—Howard's GKX portable workstation—at the right price.



Intel, the Intel logo, Intel inside, Core i7, i5 & i3 are trademarks of Intel Corporation in the US and other countries.

- Business-ready—Real and Virtual

GKX Laptop Computer Specifications

Chipset

Core Logic Intel® HM370

Operating System

All versions of Microsoft Windows® 10

Processors

Intel® 8th Generation Core™ i7

System Memory

Up to 32 GBs DDR4 (2 Slots, SO-DIMMs)

Display

15.6" Full HD anti-glare (1920X1080)
Bezelless screen

Audio

Realtek high definition audio with twin built-in speakers

Graphics

Nvidia GeForce GTX 2060 6GB GDDR6
and GTX 2070 8GB GDDR6

Network

Intel dual-band wireless-AC 9560 2x2 +
Bluetooth 5.0

Internal Ports

- (1) 2.5" SATA/HDD
- (2) M.2 Sata/ PCIE

External Ports

- (1) USB 3.1 type C
- (1) USB 2.0
- (1) HDMI 2.0
- (2) Mini DP
- (2) USB 3.1
- Audio= Mic, Speakers
- (1) LAN
- (1) Headphone jack
- (1) Multimedia card reader

Chassis Technical Specifications

Dimensions: 14.13 x 9.29 x 0.86 (inches)
Weight: ~4.29lbs
Speakers: 2W x 2, Sound Blaster Cinema 5
Notebook type: Clamshell
Multimedia card Reader
Battery: 3 Cell 46.74Wh polymer
Power Adapter: 150 watt Ac Adapter

Keyboard

Mechanical LIGHTSWITCH, per key RGB
keyboard

Pointing Devices

Integrated touchpad with Microsoft PTP
multi-gesture and scrolling function

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE** customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.



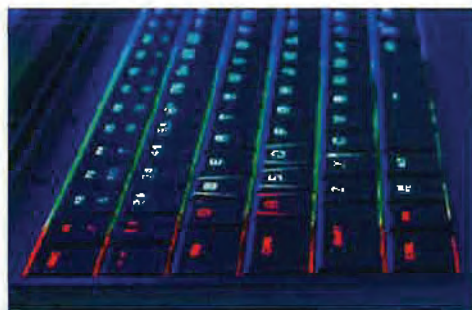
Right Side Ports



Left Side Ports



Back Ports



Close-up View of Keyboard

FAQs

Q: Why does the GKX have a smaller footprint than other 15.6" laptops?

A: Using Bezel-less technology increases the viewable area of a laptop screen, so you get a full 15.6" look with a sleek 14" inch form.

Q: What is the advantage of Howard's Mechanical LIGHTSWITCH keyboard?

A: The GKX's mechanical keyboard is an improved design which delivers incredible tactility, faster responsiveness, better key travel distance, larger keycaps, and longer life span (an average of 50 million clicks).

Contact Howard Technology Solutions for world-class service and support.

Online: www.howardcomputers.com/support
Phone: 1.888.323.3151
Email at tech@howardcomputers.com, or
Conventional mail at:

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Ellisville, Mississippi 39437

The Howard Advantage!

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- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute

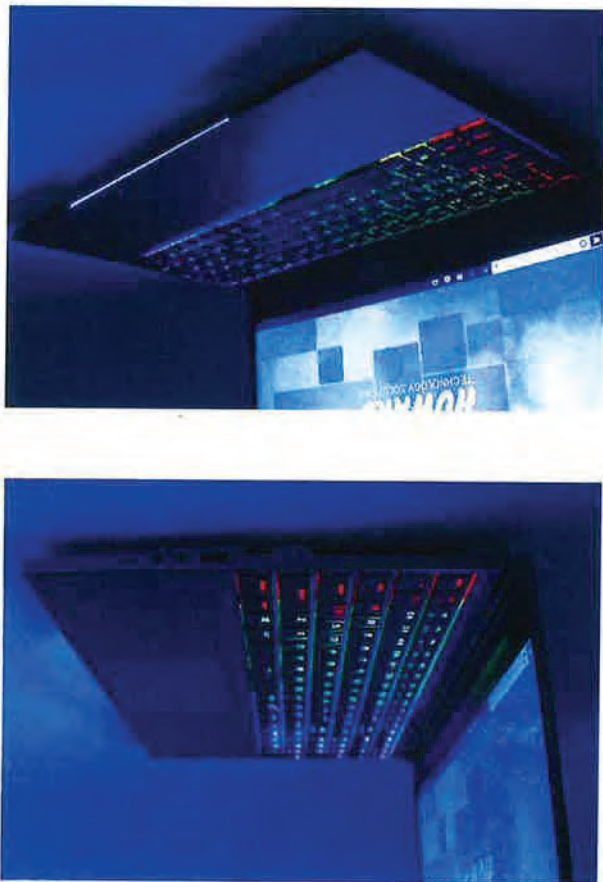
Premium, full-size mechanical
LIGHTSWITCH keyboard

- Per-key RGB backlit with Anti-ghosting
- NKRO (N-Key Rollover)
- Customizable RGB light bar
- 10-key numeric keypad
- Removable key caps

HOWARD

The GK5X Laptop for Gaming

888.912.3151 | www.Howardcomputers.com



Blast your way through to parts unknown with the GK5X. Howard's VR-ready gaming laptop. Powered by Intel's 8th generation six-core processors, the GK5X is ultra fast, super powerful, and innately responsive. Featuring Nvidia's GeForce GTX graphics, the GK5X is designed to catapult you into virtual worlds that are so realistic you'll swear you're there! And this system looks good, too! The GK5X has an extremely thin form factor—just .86 inches; that makes it the thinnest laptop in the industry with a mechanical keyboard. And not just any keyboard, it's a premium full size, NKRO (N-Key Rollover) per-key RGB backlit gaming keyboard with Anti-ghosting, 10-key numeric keypad, removable key caps, and a customizable RGB light bar. This beautiful system also features an impressive thermal design that ensures it stays as cool as it looks. Dominate your game with the GK5X gaming laptop.

from Howard!

• Fast • Powerful • Responsive

Intel, the Intel logo, Intel Inside, Core i7, and other countries, marks of Intel Corporation in the U.S. and other countries.



GK5X Laptop Computer Specifications

Chipset
Core Logic Intel® HM370

Operating System
All versions of Microsoft Windows® 10

Processors
Intel® 8th Generation Core™ i7

System Memory
Up to 32 GBs DDR4 (2 Slots, SO-DIMMs)

Display
15.6" Full HD anti-glare (1920X1080)
Bezelless screen

Audio
Realtek high definition audio with twin built-in speakers

Graphics
Nvidia GeForce GTX 2060 6GB GDDR6
and GTX 2070 8GB GDDR6

Network
Intel dual-band wireless-AC 9560 2x2 +
Bluetooth 4.2

Internal Ports
(1) 2.5" SATA/HDD
(2) M.2 SATA/PCIe

External Ports

(1) USB 3.1 type C
(1) USB 2.0
(1) HDMI 2.0
(2) Mini DP
(2) USB 3.1
Audio – Mic, Speakers
(1) LAN
(1) Headphone jack
(1) Multimedia card reader

Chassis Technical Specifications
Dimensions: 14.13 x 9.29 x 0.86 (inches)
Weight: ~4.29lbs
Speakers: 2W x 2, Sound Blaster Cinema 5
Notebook type: Clamshell
Multimedia-card Reader
Battery: 3 Cell 46.74Wh polymer
Power Adapter: 150 watt Ac Adapter

Keyboard
Mechanical LIGHTSWITCH, per key RGB keyboard

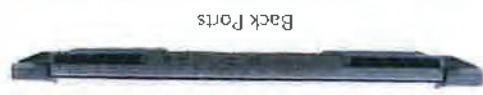
Pointing Devices
Integrated touchpad with Microsoft PTP

multi-gesture and scrolling function

Warranty & Support

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Contact us today for more information.



Close up View of Keyboard

- Premium, full-size mechanical LIGHTSWITCH keyboard
- Per-key RGB backlit with Anti-ghosting
- NKRO (N-Key Rollover)
- Customizable RGB light bar
- 10-key numeric keypad
- Removable key caps

Q: Why does the GK5X have a smaller footprint than other 15.6" laptops?

A: Using Bezel-less technology increases the viewable area of a laptop screen, so you get a full 15.6" look with a sleek 14" inch form.

Q: What is the advantage of Howard's Mechanical LIGHTSWITCH keyboard?

A: The GK5X's Mechanical Keyboard is an improved design which delivers incredible tactility, faster responsiveness, better key travel distance, larger keycaps, and longer life span (an average of 50 million clicks).

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The Howard Advantage!

- Phone and web tech support for the LIFE of your system
- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute

HOWARD

Flexible, portable, and affordable It's whatever you need it to be!

Stretch your technology budget even further with Howard's new, low cost, 2-in-1 notebook computer, the ED20. It's tough, lightweight, and designed for maximum flexibility—fold it 360° to use as a notebook, position it like a tent for standing mode, or just open it and use it like a regular notebook. The ED20 is powered by Intel's energy efficient, quad core x5-Z8350 processor; it has 64GB eMMC storage, support for 802.11ac and Bluetooth wireless.

In addition to impressive versatility and performance, it has features you won't find on other budget-friendly computers, such as a rotatable webcam with a snap-on magnifier (30x magnification), fingerprint reader, and an active pen stylus docked on the side, all of which make it ideal for a classroom environment.

—10 more reasons to choose Howard's ED20 2-in-1 notebook!

- ✓ Low Price Point: Great for cost-conscious consumers everywhere
- ✓ MIL-STD 810F: vibration/drop tested; water resistant; dustproof IP5
- ✓ Energy Star compliant
- ✓ Lightweight: The ED20 weighs less than 3 lbs— ideal for users on the go
- ✓ Fingerprint Reader: Biometric finger scanning adds another layer of security
- ✓ Rotatable Camera: 2 megapixel camera with a snap-on magnifier (30x magnification)
- ✓ Touchscreen: 10-point capacitive touchscreen
- ✓ Active Pen: (docked on the side) Pen pressure sensitivity enables you to draw or write with precision and accuracy
- ✓ Carrying Handle for added convenience

The Howard Advantage!

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- Phone and web tech support for the LIFE of your system
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- Phone hold times < 1 minute



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Active Pen

The ED20 2-in-1 Notebook



ED20 2-in-1 Notebook Specifications

Chipset
Intel® SoC

Processor
Intel Quad Core processor
2M Cache, up to 1.92 GHz

Operating System
Microsoft Windows® 10, 64-bit

Processor
1.10 GHz up to 2.40 GHz

System Memory
4 GB DDR3L 1600MHz

Hard Disk Drive
64GB eMMC storage

Video
Integrated Intel HD graphics

Display
11.6" Wide screen LED LCD with
max resolution: 1366 x 768 HD

Audio
• HD audio
• Built-in 2 Stereo speakers

Monitor
11.6" Widescreen LED LCD, 1366 x 768 HD

Optical Drives
USB optional 8X DVDRW dual layer drive

Network Ready
Native wireless (USB NIC optional)

Ports
(1) Standard USB 2.0
(1) USB Type-C charging & data
(1) Micro SD card reader
(1) Headphone out
2-Megapixel rotatable webcam
Integrated array microphone

Power Supply
4 cell battery, USB Type-C

Dimensions
12"(W) x .78"(D) x 8"(H)

Battery Life
Up to 10 hours with 4-cell battery

Touchscreen
10-point capacitive

Wireless Connectivity
802.11 and Bluetooth wireless included

Webcam
2-megapixel, rotatable

Weight
2.86 lbs

The ED20 2-in-1 Notebook

Contact Howard Technology Solutions for world-class service and support. Online: www.howardcomputers.com/support; Phone: 1.888.323.3151 Email at tech@howardcomputers.com, or Conventional mail at:

Howard Technology Solutions,
36 Howard Drive,
Ellisville, Mississippi, 39437

Warranty & Support

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- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

FAQs

Q: What accessories are available for the ED20?

A: ED20 accessories include an Active Pen and a Snap-on Magnifier. All come standard with the ED20

Q: Does the ED20 Support Video Out?

A: Yes, the USB-C port on the ED20 supports USB-C display adapters.

Q: Can the USB-C be used for charging and for USB devices simultaneously?

A: Yes, USB-C adapters are available that will allow USB device connections and USB-C power passthrough so that you can charge your notebook and use your USB-C devices at the same time.



HX-15

FEATURES AND SPECIFICATIONS

Operating System

All versions of Microsoft's
Windows® 10

Processors

Intel® i7 Core™ processors

System Memory

Up to 32GB DDR4
(2 slots, SO-DIMMS)

Storage

HDD 128GB – 2TB NVME PCIe SSD

Display

15.6" Narrow bezel 60Hz full HD IPS
72% NTSC anti-glare display
(1920 x 1080)

Audio

Realtek® ALC 887 8-channel
High-definition

Network

Intel® dual-band wireless AC 9560 2x2
Plus Bluetooth 5.0

External Ports

- (1) HDMI,
- (1) USB 3.1 type-C
(Data Transfer Only),
- (2) USB 3.1
- (1) USB 2.0,
- (1) Micro SD Cardreader
- (1) Gigabit Ethernet RJ45
- (1) Audio out & Mic In Combo Port
- (1) Kensington Lock slot

Chassis Dimensions

14.03" x 9.19" x 0.64"

Weight

3.2lbs

Webcam

IR Webcam with Windows Hello
support and dual digital microphones

PSU: 65W AC adapter

Keyboard

Premium membrane white
LED-backlit keyboard

Warranty & Support

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Email at tech@howardcomputers.com, or

Conventional mail at:

Howard Technology Solutions
36 Howard Drive
Ellisville, Mississippi 39437



Black Series HX-15

POWERED BY HOWARD INNOVATION



Tough, Brilliant, High-Performance

From its sleek, magnesium-alloy chassis and premium LED-backlit keyboard to its outstanding performance, Howard's Black Series HX-15 laptop computer gets your attention. In addition to being tough and attractive, the HX-15 delivers the speed and responsiveness required by gamers and appreciated by students and busy professionals. It's powered by super-fast Intel® i7 core processors and offers other high-performance essentials, such as DDR4, Type-C USB, built-in HD audio, and Ice Series intake fans to keep it running cooler longer. GeForce graphics and a 15.6" high-definition, 72% NTSC anti-glare display combine to produce clear, vivid imagery in colors that are intense and true to life. It also features Intel wireless connectivity, plus Bluetooth 5.0 for maximum transmit speed, better coverage, and improved location-based services. For business, online education, and entertainment—Howard's HX-15 gets it done.

HOWARD

Powerful, flexible, and upgradeable

Desktop replacement

Dominate your day job with Howard's newest desktop replacement, the N650DU laptop computer. Powered by 7th generation Intel[®] processors, the N650DU delivers the serious, high-speed performance you need to take care of business and the flexibility to work wherever your business takes you.

Optimized to meet the demands of high-powered applications, the N650DU features DDR4 memory for improved data integrity, a reengineered cooling system for greener, low-cost computing, and M.2 and 2.5" storage options. It includes a DVD-RW drive, full size, white LED backlit keyboard with numeric keypad, and powerful HD graphics that beautifully enhance visual output for clear, crisp imagery—perfect for powering presentations and multimedia productions.

And there's room to grow! The N650DU has an easy-access service panel that enables you to upgrade laptop components, such as CPU, memory, and storage. It's all there—Howard's N650DU has everything you need to do your job, and then some.



—More reasons to choose Howard's N650DU desktop replacement!

- ✓ Desktop CPU: Provides more processing power
- ✓ Easy Access Panel: Simplifies service and upgrades
- ✓ Separate Audio Ports: Many laptops now combine headphone and mic into single port, N650DU has separate headphone and mic, plus a digital S/PDIF coaxial output port.
- ✓ M.2 and 2.5" Storage: Supports many storage configurations for budget, performance, or capacity
- ✓ Removable battery and lots of ports!

The N650DU Desktop Replacement

The Howard Advantage!

With every Howard product purchase, you receive the following for FREE!

- Phone and web tech support for the LIFE of your system
- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute



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HOWARD

N650DU

Desktop Replacement

Chipset

Intel® H170

Processor

7th Generation Intel® Core

Operating System

Microsoft Windows® 10 Professional,
64-bit

System Memory

Up to 32GB of DDR4 (2 Slots, SO-DIMMs)

Video

Intel HD graphics

Display

15.6" FHD 1920x1080

Audio

HD audio
(2) 2W speakers

Network

10/100/1000 Ethernet
Intel dual-band wireless-
AC 8260 2x2 AC + B1

Internal Ports

M.2 2230, A Key (Wireless LAN)
M.2 2280, M Key (SATA / NVMe)
M.2 3042, B Key

External Ports

USB 2.0 = 1
(2) USB 3.1 Type-A,
(1) Type-C
Audio- mic, headphone, S/PDIF
(1) LAN
(1) VGA
(1) HDMI
6-in-1 card reader
DC power In

Power Supply

6 cell battery 48.84Whr

PSU

90W

Dimensions

14.92" x 10.37" x 1.27" (inches)

Device Type

Clamshell with Kensington lock

Drive Bays

(1) 2.5"
(1) M2
(1) Optical

Webcam

HD/20p with digital microphone

Weight

5.4lbs



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Howard Technology Solutions,
36 Howard Drive,
Ellisville, Mississippi, 39437

Warranty & Support

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FAQs

Q: What is the advantage of a desktop processor in a laptop?

A: The benefit is that you get higher performance and functionality for seamless multi-tasking and rapid response time.

Q: Can the N650DU support multiple monitors?

A: Yes, with multiple display ports N650DU can support additional monitors.

Q: Can I use the M.2 and 2.5" at the same time??

A: Yes, you can use the M.2 or the 2.5" or both at the same time.



NB50TZ

FEATURES AND SPECIFICATIONS

Chipset
Intel® H310

Operating System
Microsoft Windows® 10, all versions

Processors
Intel® Celeron® processors to
Intel Core i3, i5, i7, and i9

System Memory
8GB –32GB SO-DIMM

Display
15.6" Full HD anti-glare display
(1920x1080)

Audio
Realtek® ALC 887 8-channel
High-definition

Network
Intel dual-band wireless 9560 2x2 +
Bluetooth 4.2

External Ports
(1) HDMI 1.4
(1) USB 3.1 type-C
(2) USB 2.0
(1) 6-in-1 SD Cardreader
(1) Gigabit Ethernet RJ45
(1) Headphone Jack
(1) Microphone Jack
(1) Kensington Lock slot

N1 Chassis

Dimensions
14.88" x 9.84" x 1.17" (inches)

Weight
5.5lbs

PSU: 65W



Top side



Underside



Right Side Ports



Left Side Ports

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Ellisville, Mississippi 39437

NB50TZ

POWERED BY HOWARD INNOVATION



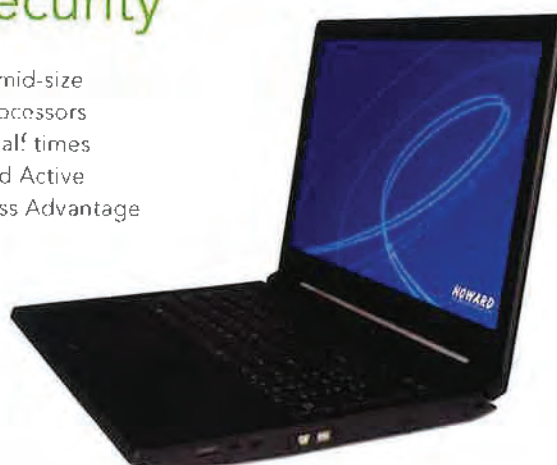
Power, Performance and Data Protection

Replace your desktop with a laptop PC that keeps pace with the person you are, the places you go, and the games you play. Power up with Howard's NB50TZ, the perfect combination of speed and performance for people on the go. Powerful Intel® processors and Wireless-AC 9560 team up to deliver speeds that are almost 12x faster than baseline WIFI—that means super-fast, wireless download speeds and great streaming experiences; seamless video-conferencing, straightforward multitasking, and accelerated gaming. Additional features include Intel's Rapid Storage Technology for protection against data loss and Device Protection Technology with Boot Guard, which helps protect against viruses and malicious software attacks. It's all there, but if you ever want to upgrade, the NB50TZ's easy-access panel makes it simple. For online education, business, and gaming, Howard's NB50TZ is ideal.

Business-class power and security

Get business-class power, security, and durability in Howard's new, mid-size business notebook, the W350DV. Powerful Intel® 6th Generation processors give the W350DV an extra-quick start and deliver up to two and a half times the performance of previous generation models. It features vPro and Active Management technologies, and has support for Intel's Small Business Advantage (Intel® SBA) to help manage security and productivity issues.

In addition, the W350DV utilizes Intel's work-oriented Q170 chipset to simplify lifecycle management and minimize hardware support costs, significantly lowering total cost of ownership. Whether you work in an office, on-the road, or at home, Howard's W350DV is a boon for business –powerful, reliable, and affordable.



Howard Technology Solutions recommends genuine Microsoft® Windows® 10

The Howard Advantage!

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- ✓ Phone hold times < 1 minute

Experience the *Howard difference*.



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Feature	Benefits
Low Price Point	Low price point with all of the latest features of a business notebook.
Processors	Supports the latest Intel® 6th Generation i Core™ (i3, i5, and i7) processors
Interfaces	Support for many outputs such as Flash Media, Front Audio, USB 3.0, 2.0, VGA and HDMI. Supports 802.11n
Microsoft Certified	Highly tested system optimized for Windows®10 Professional
15.6" Display	Weighing in at less than 6 pounds, the W350DV is ideal for business users
Enhanced Graphics	Intel® HD 530
Wireless Connectivity	High-speed connectivity with 802.11n Wireless technology
Keyboard	Backlit LED, water resistant keyboard
Extended Battery Life	Up to 7.0+ hours of usage on the included 6 cell battery
Webcam	The included 1.0MP webcam can be used for numerous multi-media applications.
Pay & Burn CDs/DVDs	The W350DV comes included with a DVD Rewritable drive for burning your desired media.
Network Ready	Includes integrated 10/100/1000 Mbps

Notebooks - Howard W350DV

Feature	Specification
Chipset	Intel® Q170 chipset
Supported Operating Systems	Windows® 10 Professional 64-bit
Supported Processor Families	Intel® Core i3, i5, and i7 processors
System Memory	SODIMM, DDR3 x2, 1600 MHz up to 16GB with quad core only (8GB each slot)
Cache Memory	3MB L2 Cache (i3, i5) or 6MB L2 Cache (i7)
Hard Disk Drive	2.5" SATA Hard Drive bay, or SSD, Optional storage for docking station
Video	Intel® HD 530
Audio	Built in HD audio; 2-channel stereo speakers, Microphone
Monitor	15.6" Wide Screen LED LCD 1600 x 900 HD+
Optical Drives	DVDRW Dual Layer Drive
Network	Integrated 10/100/1000 Mbps
Ports	USB 2.0 x1, USB 3.0 x3, RJ45, VGA, HDMI, 9-in-1 card reader, mic in, headphone out, fingerprint reader, Express Card slot, 2x mini card slots, DC-in x1
Wireless	High-speed connectivity with 802.11n Wireless Technology and Bluetooth
Fingerprint Reader	Fingerprint Reader—extra level of security
Power Supply	65W AC Adapter 19V DC, 3.42 A
Dimensions	15.04" (W) x 10.22" (D) x 1.3" (H)
Weight	Approximately 5.51 lbs

Q: What types of media does the 9-in-1 card reader support?

A: The 9-in-1 card reader supports Multimedia Card (MMC) and Secure Digital (SD).

Q: What is the average battery life for the W350DV?

A: The 6 cell battery in this unit last approximately 7.0+ hours under normal usage.

Q: What are Core® i3, i5, and i7 processors?

A: The Intel® Core™ i3, i5, and i7 processors are intel's 2nd generation i-Core mobile processors designed to deliver breakthrough performance.

Q: Whom should I contact for support?

A: Call Howard Technology Solutions for world-class support and service if there are any questions about the notebook. Customer support is available
Online at <http://www.howardcomputers.com/support>,
By phone at 1.888.323.3151,
Via email at tech@howardcomputers.com or
Through conventional mail at Howard Technology Solutions,
36 Howard Drive, Ellisville Mississippi, 39437



Experience the Howard advantage

Product Upgrades

Enhance your purchase with any or all of the following products or services. And feel free to contact us toll free at 888-912-3151 to discuss any questions or your specific needs!

- USB port replicator
- On-site service
- Smart card reader
- External hard drives
- External USB keyboard and mouse

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HOWARD

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HOWARD

888.912.3151 | www.Howardcomputers.com

The Shield Rugged Tablet



*Keyboard optional

For jobs that take you out of your comfort zone and into challenging work environments, you need Howard's rugged tablet solution, *The Shield*. This lightweight, mobile computer is certified to military (MIL STD-810G and IP65) standards for protection against the potentially damaging effects of extreme temperatures, drops, dust, water, shock, and vibration. The Shield's reinforced structure is what makes it so tough -- tough enough to withstand the rough-and-tumble of fieldwork, drops of up to 4 feet, and harsh weather conditions. The Shield is powered by Intel's dual-core m3-7Y30 processor, so there is plenty of power for whatever you do. It features Windows® 10, a high-precision GPS, and built-in, front and rear cameras for video recording and communication. The Shield has a configuration port for optional accessories (keyboard, barcode reader, 2d scanner, etc.), making it ideal for industrial applications. Whether you're in the field, behind a desk, or anywhere in-between, the Shield offers ultra mobility and reliable high-performance with low power consumption and long battery life. Rugged, reliable, and ready to roll -- The Shield, from Howard.

Power up with the Shield, and experience the Howard Advantage!

Rugged—Reliable—Powerful



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The Shield

Specifications

Chipset

Intel® Z370

Operating System

All versions of Microsoft Windows® 10

Processors

Intel® m3-7430

System Memory

Up to 8 GBs of LPDDR3 (integrated)

Display

12.2" 1920 x 1200 IPS screen

Audio

Realtek® High Definition Audio with twin built-in speakers

Network

WiFi 802.11(a/b/g/n) , BT 4.2
Support RJ45 1000M ethernet

Sensors

Electronic compass, G sensor, gyroscope

External Ports

(1) USB 3.0
(2) USB 2.0
(1) Mini HDMI
(2) TF Slot
(1) RS232
(1) RS485
Audio= Mic, Speakers
(1) LAN
(1) Headphone jack
(1) Multimedia card reader

Speakers

Front: 2MP, Rear: 5MP

Camera

2Wx2

Battery

6500mAh/7.4V 1000mAh/7.4V
(Dual battery)

Dimensions

12.58" x 8.50" x 0.92" (inches)

Weight ~3.3lbs

Certifications

MIL STD 810G IP65

Operating Temperature

22 °F to 158 °F

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- **FREE** customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

Contact Howard Technology Solutions for world-class service and support.

Online: www.howardcomputers.com/support;

Phone: 1.888.323.3151

Email at tech@howardcomputers.com, or
Conventional mail at:

Howard Technology Solutions
36 Howard Drive
Ellisville, Mississippi 39437



Sideview with
Optional Keyboard



FAQs

Q: What are some benefits of ASUS 5-Way Optimization?

A: An automated tuning utility that optimizes overclocking and cooling profiles for your unique system configuration.

Fans stay whisper-quiet with everyday computing, and deliver optimal airflow when the system is crunching through CPU or GPU-intensive tasks

Stress test function helps optimize and overclock for CPU or memory-centric workloads

The Howard Advantage!

With every Howard product purchase, you receive the following for **FREE!**

- Phone and web tech support for the LIFE of your system
- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute



Left Side Ports

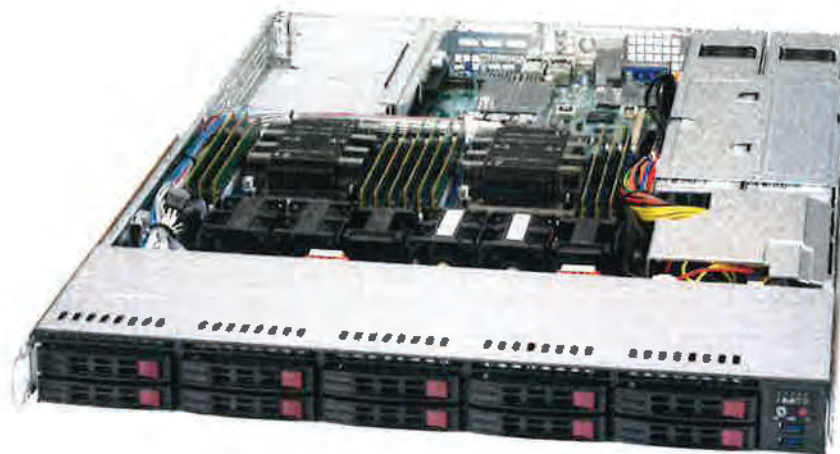


Right Side Ports



Esteem SD1208

POWERED BY HOWARD INNOVATION



Solid IT Foundation for Small Business

Workload-optimized to support the most demanding applications and simplified for deployment, Howard's Esteem Series SD1208 iSCSI SAN/NAS solution can provide any small business with a solid IT foundation at an affordable price. This 1U Windows-based iSCSI SAN/NAS solution has eight drives that can hold up to 16TB of raw storage, 3TB of memory, and RAID capability for peace of mind. And with the capacity of two Xeon® Scalable Family processors, the SD1208 gives you as much compute power as possible in a single unit, making it ideal for any space-restricted environments. The Esteem SD1208 is a great solution for a small businesses with big plans.

Howard Storage Solutions Are Good for Business!



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HOWARD

Esteem SD1208 ISCSI SAN/NAS Solution Specifications

Chipset

Intel® 622

Operating System

Microsoft Windows® 2019 and
Windows® 2019 Storage Server

Processors

Intel® Xeon Series 2nd Generation Scalable
Family

System Memory

Up to 3TB of DDR4 (12 Slots, DIMMs)

Video

VGA

Storage

(8) SATA/SAS 2.5" hot-swap drive bays;
12GB SATA/SAS controller; Battery backup
optional for storage controller
(2) OS 2.5" drive bays (RAID 1)

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

(2) PCI Express 3.0 X 16 slots
(Full height, half length)
(1) PCI-E 3.0 X 8 (Low profile)
Available on 1 processor

External Ports

(1) VGA port (Video port)
(1) RJ45 dedicated IPMI Lan port
(4) USB 3.0

Chassis Technical Specifications

Dimensions:
17.2W x 1.7H x 23.5"D (inches)

Drive Bays

(10) 2.5" Hot-swap drive bays

Form Factor: 2U Rackmount

Weight 46lbs

PSU 750W Redundant power supplies



Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
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Ellisville, Mississippi 39437



Esteem SD2212

POWERED BY HOWARD INNOVATION



The Silent Partner Every Business Needs

Howard's SD2212 iSCSI SAN/NAS solution provides you with the foundation you need to run your business. It's designed to run applications and share information across a secure internal network, safeguarding important data and confidential information and making sure that day-to-day data exchange is faster and more efficient.

The SD2212 is configured in a convenient 2U rackmount chassis and features powerful Xeon® processors with up to 28 cores, 3TB of ECC memory, and up to 144TB of raw storage! It's loaded with best-of-class virtualization technologies, has 10 hot-swap hard drives, IPMI for remote management, and RAID capability for absolute peace of mind.

When it comes to taking care of business, Howard's SD2212 is the business partner you've been looking for!

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HOWARD

Esteem SD2212 ISCSI SAN/NAS Solution

Specifications

Chipset

Intel® 622

Operating System

Microsoft Windows® 2019 and
Windows® 2019 Storage Server

Processors

Intel® Xeon 2nd Generation Scalable Family

System Memory

Up to 3TB of DDR4 (12 Slots, DIMMs)

Video

VGA

Storage

(12) SATA/SAS 3.5" hot-swap drive bays;
RAID (5,6,10,50,60); Battery backup optional
for storage controller

(2) SATA 2.5" rear hot-swap drive bays;
RAID 1

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

- (1) PCI Express 3.0 X 16 slots
(Full height, half length)
- (2) PCI Express 3.0 X 8 slots
(Standard low profile)
- (2) PCI Express 3.0 X 8 slots
(Full height, half length)—only 2 PCI-E
3.0 x 8 (Full height, half length)
available on 1 processor

External Ports

- (1) VGA port (Video port)
- (1) RJ45 dedicated IPMI Lan port
- (4) USB 3.0

Chassis Technical Specifications

Dimensions.

17.2W x 3.5H x 25.5"D (inches)

Drive Bays

(12) 3.5" Hot-Swap Drive bays

Form Factor: 2U Rackmount

Weight 64lbs

PSU 1200W Redundant power supplies



Warranty & Support

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Ellisville, Mississippi 39437

Esteem SD3216

POWERED BY HOWARD INNOVATION



Reliable and Secure Storage Solution

You depend on technology for your business. You want control; you need data security, and that's what the right storage solution can do for you—Howard's Esteem SD3216 iSCSI SAN/NAS solution. Using the power of Windows 2019 Storage Server® Standard or Windows 2019 Server® Standard, this 3U, 16-drive system is robust enough to handle heavy workloads and a multitude of users each and every day, with automated backups for quick recovery in case of a disaster. It has the capacity of two Xeon® Scalable family processors, raw storage of up to 192TB, 4TB of RAM, and RAID for that extra layer of data protection you can't live without. Howard's Esteem SD3216 is powerful, reliable, and secure—ideal for business.



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Howard Storage Solutions Are Good for Business!

HOWARD

Esteem SD3216 ISCSI SAN/NAS Solution Specifications

Chipset

Intel® 622

Operating System

Microsoft Windows® 2019 and
Windows® 2019 Storage Server

Processors

Intel® Xeon 2nd Generation Scalable Family

System Memory

Up to 4TB of DDR4 (12 Slots, DIMMs)

Video

VGA

Storage

(16) SATA/SAS 3.5" hot-swap drive bays;
RAID (5,6,10,50,60); Battery backup optiona
for storage controller

(2) SATA 2.5" hot-swap drive bays; (RAID 1)
RAID controller for OS drives

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

- (3) PCI Express 3.0 X 16 slots
(Standard low profile)
- (4) PCI Express 3.0 X 8 slots
(Standard low profile)—X16 slots are
not available with 1 processor

External Ports

- (1) VGA port (Video port)
- (1) RJ45 dedicated IPMI Lan port
- (4) USB 3.0
- (1) Fast UART 16550 Serial port

Chassis Technical Specifications

Dimensions:
17.2W x 5.2H x 25.5"D (inches)

Drive Bays

(16) 3.5" Hot-Swap Drive bays

Form Factor: 3U Rackmount

Weight 79lbs

PSU 1200W Redundant power supplies
(208V power may be required)



Warranty & Support

- Howard Technology Solutions' standard warranties apply.
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Esteem SD4236

POWERED BY HOWARD INNOVATION



Prepare Now and For The Future

Get MEGA support for your business IT infrastructure, now, with room to grow on in the future. Howard's Esteem SD4236 ISCSI SAN/NAS solution not only protects and streamlines day-to-day business operations, but it also provides maximum expansion potential for the future. The SD4236 has the capacity of two Xeon® Scalable Family processors, so access to data is efficient and super-fast. It's designed to run 24/7, with automated backups to prevent data loss and RAID for system recovery in case of disaster. The SD4236 has up to 432TB of raw storage, up to 36 drives that can be swapped out without the system ever having to be shut down. You don't know how much your business will grow or how much your system will need to support in the future—but with Howard's Esteem SD4236 ISCSI SAN/NAS solution, you will be prepared.



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Howard Storage Solutions Are Good for Business!

HOWARD

Esteem SD4236 iSCSI SAN/NAS Solution Specifications

Chipset

Intel® 622

Operating System

Microsoft Windows® 2019 and
Windows® 2019 Storage Server

Processors

Intel® Xeon 2nd Generation Scalable Family

System Memory

Up to 4TB of DDR4 (12 Slots, DIMMs)

Video

VGA

Storage

(36) SATA/SAS 3.5" hot-swap drive bays;
RAID (5,6,10,50,60); Battery backup optional
for storage controller

(2) SATA 2.5" hot-swap drive bays; (RAID 1)
RAID controller for OS drives

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

- (3) PCI Express 3.0 X 16 slots
(Standard low profile)
- (4) PCI Express 3.0 X 8 slots
(Standard low profile)—X16 slots are
not available with 1 processor

External Ports

- (1) VGA port (Video port)
- (1) RJ45 dedicated IPMI Lan port
- (4) USB 3.0
- (1) Fast UART 16550 Serial port

Chassis Technical Specifications

Dimensions:
17.2W x 7H x 27.5"D (inches)

Drive Bays

(36) 3.5" Hot-Swap Drive bays

Form Factor: 4U Rackmount

Weight 102.5lbs

PSU 1200W Redundant power supplies
(208V power may be required)



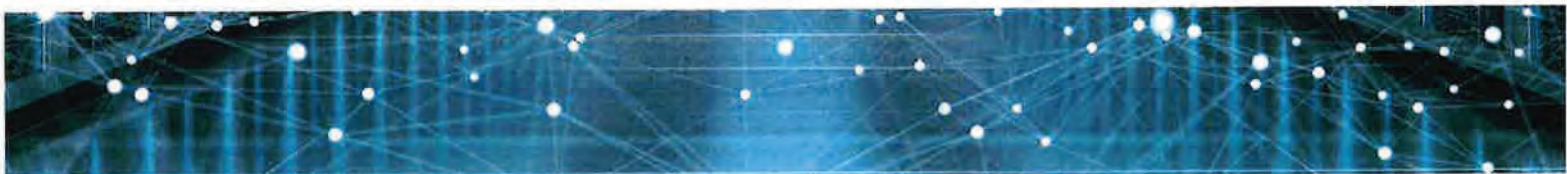
Warranty & Support

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Esteem SD4224

POWERED BY HOWARD INNOVATION



Secure, Reliable, Centralized Control

Protect business data and secure day-to-day operations; manage viruses and spam, and consolidate your resources with the right storage solution, Howard's Esteem SD4224 iSCSI SAN/NAS solution. This 4U rackmount unit utilizes Windows 2019 Storage Server® Standard or Windows 2019 Server® Standard and is designed to run 24/7, with automated backups to prevent data loss. It has the capacity of two Xeon® Scalable Family processors, 4TB of memory, and RAID for system recovery in case of disaster. The SD4224 runs up to 24 drives that provide up to 288TB of raw storage and can be swapped out without the system having to be shut down. Howard's SD4224 is built to deliver the high performance necessary for you to maintain secure, reliable, centralized control of your business.



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Howard Storage Solutions Are Good for Business!

HOWARD

Esteem SD4224 iSCSI SAN/NAS Solution Specifications

Chipset

Intel® 622

Operating System

Microsoft Windows® 2019 and
Windows® 2019 Storage Server

Processors

Intel® Xeon® 2nd Generation Scalable Family

System Memory

Up to 4TB of DDR4 (12 Slots, DIMMs)

Video

VGA

Storage

(24) SATA/SAS 3.5" hot-swap drive bays;
RAID (5,6,10,50,60); Battery backup optional
for storage controller
(2) SATA 2.5" hot-swap drive bays; (RAID 1)
RAID controller for OS drives

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

- (3) PCI Express 3.0 X 16 slots
(Standard low profile)
- (4) PCI Express 3.0 X 8 slots
(Standard low profile)—X16 slots are
not available with 1 processor

External Ports

- (1) VGA port (Video port)
- (1) RJ45 dedicated IPMI Lan port
- (4) USB 3.0
- (1) Fast UART 16550 Serial port

Chassis Technical Specifications

Dimensions:
17.2W x 7H x 26.5"D (inches)

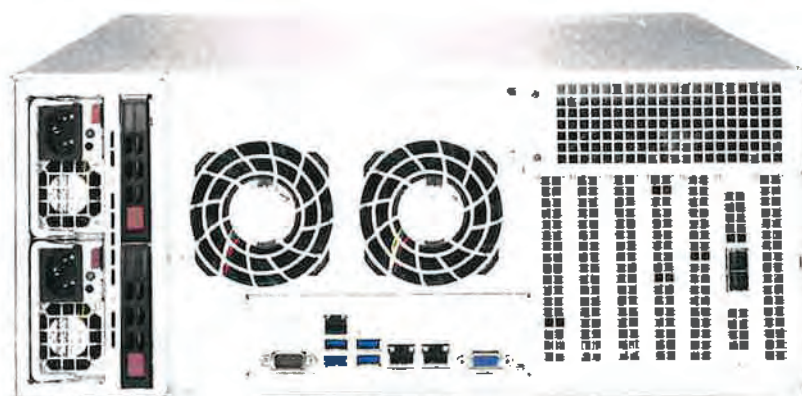
Drive Bays

(24) 3.5" Hot-Swap Drive bays

Form Factor: 4U Rackmount

Weight 92lbs

PSU 1200W Redundant power supplies
(208V power may be required)



Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
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Conventional mail at:

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EP3-1104 Server

POWERED BY HOWARD INNOVATION



Expandable Server Solutions

When it comes to business, one size does not fit all. Howard knows that, so we build our servers accordingly. Howard's Esteem EP3-1104 is designed with small business in mind, with Intel® Xeon® E-2300 series processors that can handle current needs and, yet, are powerful enough to manage expansion as your business grows. The Esteem EP3-1104 provides a platform that delivers complete reliability and performance for small business workloads. And when you own your own server, you're in control, you don't pay someone else for the privilege of accessing *your* data. Your business data is located on-premises, enabling day-to-day data exchange, without requiring email or Internet, making it quicker and more secure. With Howard's Esteem EP3-1104 server, your business is just that—your business. Utilizing Intel's E-2300 processor family increases performance per rack-unit and reduces Total Cost of Ownership, making Howard's Esteem EP3-1104 an exceptional value.



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Howard Server Solutions Are Good for Business!

HOWARD

EP3-1104 Server Specifications

Chipset

Intel® 256

Operating System

Microsoft Windows® 2019

Processors

Single Intel Xeon E-2300 Series

System Memory

Up to 128GB DDR4 ECC UDIMM memory

Video: VGA

Storage

- (4) SATA/SAS 3.5" hot-swap drive bays;
- (4) Port RAID controller with 1GB cache (RAID 0,1,5,10)

Network

Dual 1GB Ethernet (RJ45)

Internal Ports

- (2) PCI Express 4.0 X 8 slots (Full height; Full length)

External Ports

- (1) VGA port (Video port)
- (2) USB 3.2 Gen 1 ports
- (2) USB 2.0 ports
- (1) RJ45 Dedicated IPMI LAN port

Chassis Technical Specifications

Dimensions:
17.2"W x 1.7"H x 19.98"D (inches)

Drive Bays

- (4) 3.5" Hot-swap drive bays

Form Factor: 1U Rackmount

Weight 30.4 lbs

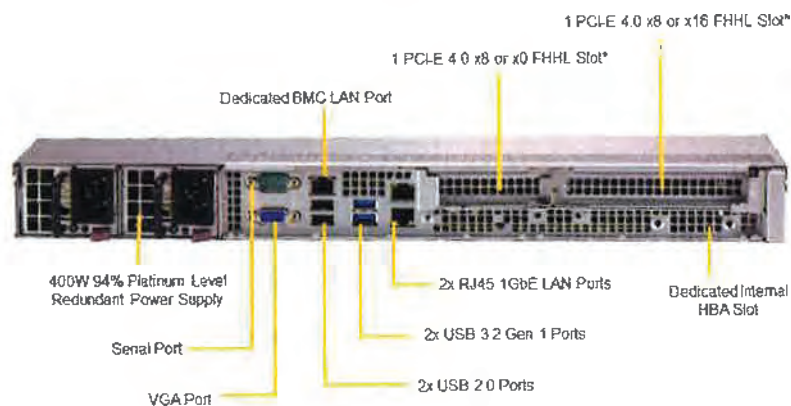
PSU 400W Redundant power supplies

Front View



Drive Bay	Description
0 - 3	4x 3.5" Hot-swap SAS3/SATA3 Drive Bays

Back View



Warranty & Support

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 Conventional mail at:

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 36 Howard Drive
 Ellisville, Mississippi 39437

Learn more about Howard servers at http://www.howardcomputers.com/landing/howard_servers.cfm



HOWARD

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The Esteem SP2210 Server

When it comes to business, lower costs, greater efficiency, and increased capacities help to maximize your bottom line. Howard's Esteem SP2210 Xeon/Nvidia GPU server solution offers that and more.

Designed for density, this 2U rackmount server is bursting with capacity, able to handle the heaviest workloads, like scientific research, 3D processing, engineering, and big data analysis—computationally intensive tasks that require massive processing capability. And, that's not all!

The Esteem SP2210 has the raw power and core technology necessary to process image, voice and other cognitive workloads. Its optimized thermal design ensures better cooling performance and less power consumption.

Howard Servers Are Good For Business!



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Performance • Capacity • Flexibility

SP2210 Server

Specifications

Chipset

Intel® C621

Operating System

Microsoft Windows® 2019 and
VMware ESXi

Processors

2nd Gen Intel® Xeon® Scalable Processors
and Intel® Xeon® Scalable Processors

System Memory

Up to 4TB ECC DDR4-RDIMM/LRDIMM
16 DIMM slots

Video

VGA

Storage

SATA3 (6Gbps) with RAID 0, 1, 5, 10

Network

Optional Network Cards 1GB, 10GB Ethernet (RJ45 or SFP+), Mellanox ConnectX-4, 40GB Ethernet

Internal Ports

(6) PCI Express 3.0 x16
(1) PCI-E 3.0 x8 (in x16, LP) slot

External Ports

Video Ports

(1) VGA port

RJ45 Ports

(1) RJ45 dedicated IPMI Lan port

USB 3.0

(2) USB 3.0 ports (rear)

Chassis Technical Specifications

Dimensions:

17.2"(W) x 3.5"(H) x 31"(D) (inches)

Weight

54lbs (24.5 kg)

Drive Bays

(10) 2.5" Hot-swap drive bays

GPU Support

Up to 6 GPUs depending the model

Form Factor

2U Rackmount

PSU

2000W Redundant

Warranty & Support

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HOWARD TECHNOLOGY SOLUTIONS

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Esteem AS140

HOWARD UDP Appliance Powered by arcserve.



Industry-proven AIO for Disaster Recovery

Future-proof your business with Howard's Unified Data Protection (UDP) solution, the AS140—effective cybersecurity and proven disaster recovery for real peace of mind. Powered by Arcserve®, the AS140 safeguards your systems and applications in cloud, virtual, and physical environments, delivering every data protection capability you need for your business—A+ protection!

- Adaptability
- Agent-less backup
- Advanced deduplication
- Amplified storage efficiency
- Advanced security
- Assured recovery

Secure and simplify processes across all storage platforms, better support users, and reduce the risk of extended downtime, so you can spend more time on strategic IT initiatives. *Do it ALL* with the Esteem AS140 from Howard!



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HOWARD

Esteem AS140 Arcserve Solution

Specifications

Chipset

Intel 622

Operating System

Windows 2019 with
ARCserve UDP Premium 1TB license
Subscription (2TB total) (1 or 3 years)
(Optional Sophos Intercept X for Server
included)

Processors

Single Intel Xeon® Silver 4208

System Memory

32GB

Video

VGA

Storage

(3) 1TB 3.5" SATA drives in a RAID 5
via hardware RAID
(1) 480GB SSD for operating system

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

(1) PCI Express 3.0 x16 slots
(Full height, full length)
(1) PCI Express 3.0 x8 (Standard low profile)

External Ports

(1) VGA port (Video port)
(1) RJ45 dedicated IPMI Lan port
(4) USB 3.0 x2; USB 2.0 x2

Chassis Technical Specifications

Dimensions

17.2W x 1.7H x 25.6"D (inches)

Form Factor 1U Rackmount

Weight 48.1 lbs

PSU 500W Redundant power supplies



AS140 Front Panel



AS140 Back Panel

Information on Arcserve UDP, a trial version, and other Arcserve solutions can be found on Arcserve's website at www.arcserve.com.

ARCserve Warranty and Support

For all incidents, direct access to technical support and the ability to open and manage support incidents online through <https://support.arcserve.com>, by seeking assistance via online chat, or by telephone.

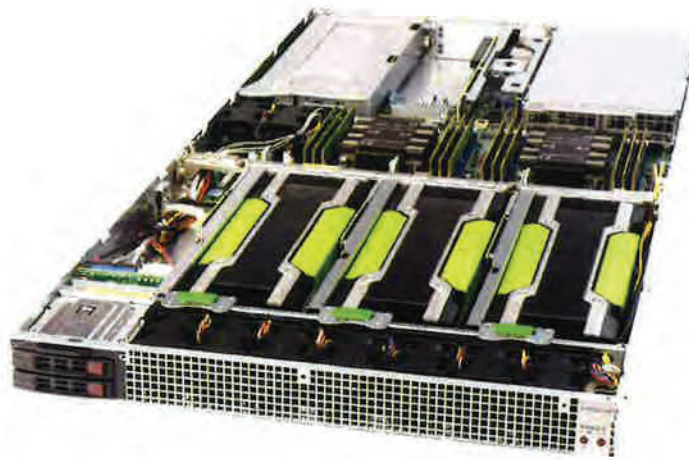
Product images, specifications, and availability are subject to change.

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Esteem SG1204

POWERED BY HOWARD INNOVATION



Intel® Xeon/Nvidia GPU—Massive Processing Capability

When it comes to business, lower costs, greater efficiency, and increased capacities help to maximize your bottom line. Howard's Esteem SG1204 Xeon/Nvidia GPU server solution offers that and more. Designed for density, this 1U rackmount server is bursting with capacity, able to handle the heaviest workloads, like scientific research, 3D processing, engineering, and big data analysis—computationally intensive tasks that require massive processing capability. And that's not all. The Esteem SG1204 has the raw power and core technology necessary to process image, voice and other cognitive workloads. Its optimized thermal design ensures better cooling performance and less power consumption. The SG1204 is packed with features that make it highly scalable, such as two Xeon processor slots, 3TB of memory, redundant 2000W power supplies, and two 10GB Ethernet ports. It supports up to 4 Nvidia GPU cards for high-performance computing (HPC), Machine and Deeper Learning, and NVMe for even faster transfer speeds. The SG1204 is ideal for a virtual desktop environment* (VDI), simplifying management, enhancing security, and increasing productivity.

*Specific or additional components are required for a complete VDI solution

Howard servers are good for business!

FEATURES AND SPECIFICATIONS

Chipset

Intel® C621

Supported Operating Systems

Windows 2019, Windows 2016, Ubuntu
18.04 LTS, Red Hat 7.3

Supported Processor Families

Intel Xeon 1st and 2nd Generation
Scalable Family

System Memory

Up to 3TB of DDR4 (12 Slots, DIMMs)

Video

VGA

Storage

(2) SATA/SAS3 2.5" hot-swap drive bays;
SATA RAID (0,1,5,10);
Optional SAS controller available;
Optional 2 X M.2 2280 NVMe card (Dual
Processor only, RAID 0 or 1)

Network

(2) 10GB Ethernet (RJ45)

Internal Ports

(4) PCI Express 3.0 X 16 slots (FHFL)
(2) PCI Express 3.0 X16 slots (Standard
Low Profile)

External Ports

(1) Video port=VGA
(2) USB 3.0 ports rear
(1) RJ45 Dedicated IPMI Lan port

Optional GPU Cards (Maximum of 4)

Nvidia Tesla V100 for PCIe (16GB or
32GB), Nvidia Tesla P40 (24GB), Nvidia
Quadro RTX5000 (16GB)

Optional GPU Cards (Maximum of 2)

Nvidia M10 (32GB)

Chassis Technical Specifications

Dimensions

17.2" (W) X 1.7" (H) X 35.2" (D)

Weight

Approximately 58.1lbs

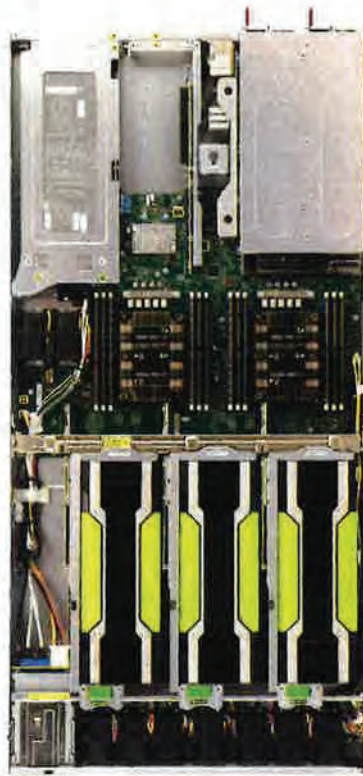
Drive Bays

(2) SATA/SAS3 2.5" hot-swap drive bays;

PSU 2000W redundant power supplies



1U Rack-mount- Rear View



SG1204 Top View

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
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Conventional mail: Howard Technology, 36 Howard Drive, Ellisville, Mississippi 39437

Esteem SG4204

POWERED BY HOWARD INNOVATION



Massive Processing Capability

When it comes to business, lower costs, greater efficiency, and increased capacities help to maximize your bottom line. Howard's Esteem SG4204 server solution offers that and more. Designed for density, this 2U rackmount server is bursting with capacity, able to handle the heaviest workloads, like scientific research, 3D processing, engineering, and big data analysis—computationally intensive tasks that require massive processing capability. And that's not all. The Esteem SG4204 has the raw power and core technology necessary to process image, voice and other cognitive workloads. Optimized thermal design and four hot-swap fans ensure better cooling performance and less power consumption. The SG4204 is packed with features that make it highly scalable, such as four (4) processor slots, up to 8TB of DDR4, redundant 2200W power supplies, and two 10GB Ethernet ports. It supports up to four (4) Nvidia GPU cards for high-performance computing (HPC), Machine and Deeper Learning, and NVMe for even faster transfer speeds. The SG4204 is ideal for a virtual desktop environment* (VDI), simplifying management, enhancing security, and increasing productivity.

Howard servers are good for business!

FEATURES AND SPECIFICATIONS

Chipset

System on Chip (SoC)

Supported Operating Systems

Linux-based OS only

Supported Processor Families

Dual AMD EPYC™ 7002 Series processors
Up to 128 Cores (64 per CPU)

System Memory

32 DIMM slots; up to 8TB 3DS ECC DDR4-
3200MHz SDRAM

Storage

(2) SATA/SAS3 2.5" hot-swap drive bays;
SATA RAID (0,1,5,10);
Optional SAS controller available,
Optional 2 X M.2 2280 NVMe card (Dual
Processor only, RAID 0 or 1)

Network

Dual RJ45 10GbE-aggregate host LAN,
RJ45 1GbE IPMI

GPU Support

Supports 4x A100 40GB SXM4 GPUs with
NVlink GPU interconnect and PCIe Gen4
to host CPUs

Fans

(4) Hot-swap heavy duty fans

Internal Ports

(4) PCI Express Gen 4 x16 (LP) slots
(2) PCI Express Gen 4 x8 (LP) slot

External Ports

(1) VGA
(2) USB 3.0 ports rear
(1) RJ45 dedicated IPMI Lan port
(1) COM port (header)
(1) TPM 2.0 (header)

Chassis Technical Specifications

Dimensions

17.2"(W) x 3.5"(H) x 32.4"(L) inches

Weight

Approximately 58.1lbs

Drive Bays

4 Hot-swap 2.5" drive bays (SATA/NVMe
Hybrid or SAS with optional HBA)

Form Factor

2U Rackmountable

PSU

2200W Redundant power supplies
with PMBus



2U Rackmount Front View

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

Contact Howard Technology Solutions for world-class service and support:

Online: www.howardcomputers.com/support Phone: 1.888.323.3151

Email at tech@howardcomputers.com, or

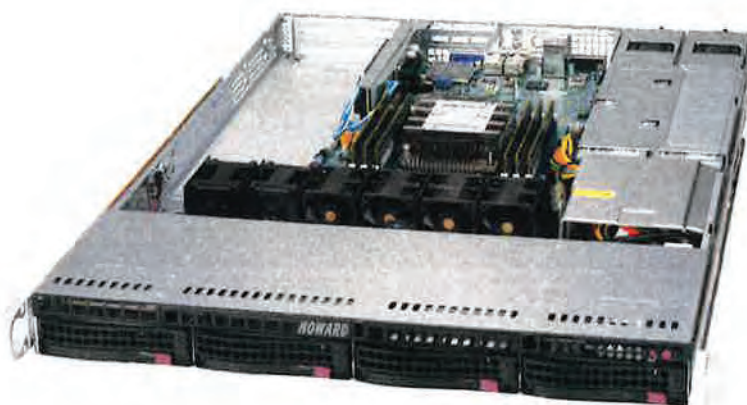
Conventional mail: Howard Technology, 36 Howard Drive, Ellisville, Mississippi 39437



HOWARD™
INDUSTRIES, INC.

SP140

POWERED BY HOWARD INNOVATION



Security, Reliability, Performance

Modernize your IT infrastructure, safeguard your organization's assets, and lower your total cost of ownership with a secure server solution from Howard—the Esteem SP140. Although designed for small to medium workloads, the SP140 server utilizes powerful Intel® Xeon® 1st and 2nd Generation scalable processors, providing a single socket that can support up to 28 cores for seamless virtualization and maximum processing capabilities. It offers up to 1.5 TB of DDR4, up to four 3.5" SATA/SAS hard drives, and supports RAID levels 0/1/5/10. Additional features include built-in data encryption, application memory protection, and compliance auditing to deliver the highest levels of security, reliability and performance. With all of this, plus power enhancements for lower TCO and green initiatives, Howard's SP140 server solution makes good business sense.

Howard servers are good for business!

SP140

FEATURES AND SPECIFICATIONS

Chipset

Intel® C622

Operating System

Windows® Server 2019/2016;

Supported Processor Families

1st and 2nd Generation Xeon® Scalable
Processor Families

System Memory

Up to 1.5TB of DDR4-2933 RAM (6 slots)

Video

VGA

Storage

4 SATA/SAS 3.5" hot-swap drive bays
JBOD or RAID (0,1,5,10) available
Optional controller required for SAS drives

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

- (2) PCI Express 3.0 X16 slots
(Full Height, Full Length)
- (1) PCI Express 3.0 X 8
(Standard Low Profile)

External Ports

- (1) VGA port
- (2) USB 3.0 ports, 2 USB 2.0 ports
- (1) RJ45 Dedicated IPMI Lan port

Features

Integrated IPMI 2.0 for remote
hardware management,
power interface, and KVM over LAN

Optional

Supports M.2 and
2 fixed 2.5" NVMe/SSD/HDD

Chassis Technical Specifications

Dimensions:

17.2" (W) X 1.7" (H) X 25.6" (D)

Weight: 48lbs

(4) 3.5" Hot-swap drive bays

(2) USBs front panel

PSU: 500W Redundant power supplies

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.



HOWARD
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Learn more about Howard servers at http://www.howardcomputers.com/landing/howard_servers.cfm

SP4806

POWERED BY HOWARD INNOVATION



The Right 4U for You

If you want a powerhouse server solution that takes up as little space as possible, Howard's SM4806 modular server could be the 4U for you! This 4U rackmount unit is powered by Intel's Xeon 2nd Generation Scalable processors to deliver the highest levels of reliability and performance. Designed for density, the SM4806 features 3TB of DDR4 and houses eight hot-pluggable computing modules, each of which can be configured as a single server and use up to 22 active cores per socket. Yes, WOW! That means you have way more power to run multiple programs simultaneously—faster, smoother processing 24/7, 365 days a year—continuous operation of all mission critical applications. Howard's SM4806 is an intelligent, energy-efficient server solution that will enable you to take your business to the next level and beyond.

Howard servers are good for business!

SP4806

FEATURES AND SPECIFICATIONS

Chipset

Intel® C621

Supported Operating Systems

Microsoft Windows® 2019 and 2016

Supported Processor Families

Intel® Xeon 1st and 2nd generation

Scalable family

System Memory

Up to 3TB of DDR4 (12 Slots, DIMMs)

Video

VGA

Storage

(6) SAS3/SATA 2.5" Hot-swap drive bays
JBOD or RAID (0,1,5,10)

Network

1GB or 10GB Ethernet (RJ45 or SFP+)

Internal Ports

(2) PCI Express 3.0 x 16 slots

Standard low profile

(1) SIOM slot

External Ports

(1) VGA

(1) RJ45 Dedicated IPMI LAN port

(2) USB 3.0 (rear)

Optional Network Cards

1GB, 10GB Ethernet (RJ45 or SFP+),
Mellanox ConnectX-4, 40GB Ethernet

Chassis Technical Specifications

Dimensions

17.25"(W) x 3.47"(H) x 28.5"(D) (inches)

Weight

Approximately 90lbs

Drive Bays

(6) 2.5" Hot-swap drive bays

Form Factor

Rackmount 4U

PSU

2200W power supply

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.



HOWARD[™]
TECHNOLOGY SOLUTIONS

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SP3-1104 Server

POWERED BY HOWARD INNOVATION



Build the Ideal IT Infrastructure

Build the ideal IT infrastructure for your organization, starting with Howard's SP3-1104 server solution. Howard server solutions deliver consistent, high-speed performance, faster computation, greater data protection, and fast-track expansion capabilities, and the SP3-1104 is no exception. Uniquely designed for any workload, the SP3-1104 provides a single socket that can support up to 28 cores (Intel® Xeon 3rd Generation Scalable Family), 2TB of memory, up to four 3.5" SATA/SAS, and redundant power supplies. Usage scenarios for this 1U system include virtualization, cloud computing, enterprise, or data center applications.



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Howard Server Solutions Are Good for Business!

HOWARD

SP3-1104 Server Specifications

Chipset

Intel® 621A

Operating System

Microsoft Windows® 2019, VMWare 7.0 Update 2

Processors

Single Socket Intel® Xeon 3rd Generation Scalable (LGA4189)

System Memory

Up to 2TB of DDR4 (8 Slots, DIMMs)

Video: VGA

Storage

(4) SATA/SAS 3.5" hot-swap drive bays; JBOD or RAID (0,1,5,10); Optional controller required for SAS drives

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

- (2) PCI Express 4.0 X 16 slots (Full height; Full length)
- (1) PCI Express 4.0 X 16 slots (Standard low profile)

External Ports

- (1) VGA port (Video port)
- (1) RJ45 dedicated IPMI Lan port
- (2) USB 3.2 Gen 1 ports
- (2) USB 2.0 ports
- (1) RJ45 Dedicated IPMI LAN port

Chassis Technical Specifications

Dimensions:
17.2"W x 1.7"H x 27.6"D (inches)

Drive Bays

- (4) 3.5" Hot-swap drive bays

Form Factor: 1U Rackmount

Weight 48.1lbs

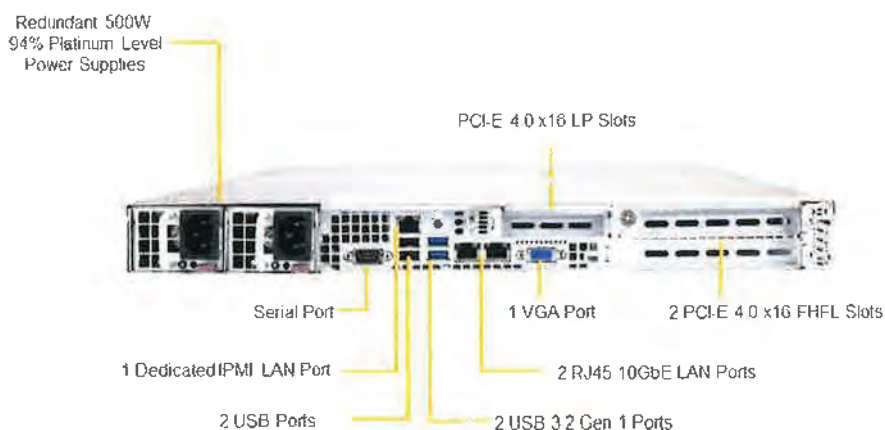
PSU 500W Redundant power supplies

(Front View – System)



Drive Bay	Description
0 - 3	4x Hot-swap NVMe Hybrid SAS3/SATA3 Drive Bays(Optional)

(Rear View – System)



Warranty & Support

- Howard Technology Solutions' standard warranties apply.
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HOWARD

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The SP280 Server



Optimize performance, increase storage, and improve security—that is what Howard's new SP280 server solution can do for the digital side of your business. It's built around Intel's new Xeon® Scalable Processor family, which delivers energy-efficient performance that is almost 50% better than the first generation of Xeon, allowing it to support operations that require near real-time access to rapidly changing data, such as financial transactions and medical records.

The SP280 comes equipped with ECC memory to protect against data corruption and uses Intel's Platform Trust and vPro™ technologies for built-in, hardware-enhanced security and remote manageability. Additional fail-safe technologies include hot-swappable hard-drives and RAID. As applications become more dependent on large amounts of data, reliability and security are paramount. Fortify your business with an affordable server solution from Howard—the SP280.

Integrated RAID

Intel® Embedded Server RAID Technology and Intel Rapid Storage Technology support RAID levels 0/1/5/10—cost-effective redundancy without add-in cards.

IPMI 2.0

Remote Control and Hardware Monitoring of CPU/system temperatures, fan speeds/ status, power supply status and chassis intrusion

Energy Efficient

Power enhancements for lower TCO and green initiatives

Xeon® Scalable Processor Family CPU



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SP280 2U Rackmount Server Specifications

Chipset

Intel® C622

Operating System

Windows® Server 2019/2016;
VMWare (ESXI 6.5) w/optional controller

Supported Processor Families

1st and 2nd Generation Xeon scalable
processor family CPUs (LGA3647)

System Memory

Up to 4TB of ECC DDR (16 Slots)

Video

Integrated Graphics

Network

Dual 10GBase-T with Intel® X722 + X557

Internal Ports

- (10) SATA 3
- (4) PCIe x 8 Gen 3
- (1) PCIe x 4 Gen 2 Low profile

External Ports

- (2) Serial
- (6) USB 3.0
- (2) LAN, 1 GbE
- (1) Video, VGA

Features

Integrated IPMI 2.0 for remote
hardware management,
power interface, and KVM over LAN

Optional

Supports M.2 and
2 fixed 2.5" NVMe/SSD/HDD

Chassis Technical Specifications

Dimensions:
17.2" (437mm) x 3.5" (89mm) x 25.5" (648mm)
Backplane: Included
(8) External Hot-swap 3.5"
(2) USBs front panel
PSU: 1000W (110v to 240v AC), Redundant

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

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Phone: 1.888.323.3151

Email at tech@howardcomputers.com, or
Conventional mail at:

Howard Technology Solutions
36 Howard Drive
Ellisville, Mississippi 39437



FAQs:

Q: What is the operating system support in this server?

A: It supports Windows Server® 2019/ Windows Server 2016 as well as VMware (VMware is not available preinstalled)

Q: How will this product be supported?

A: This product will be supported through Howard's 100% US-based team of experts available 24 hours a day, 7 days a week for FREE for the life of the system to the original purchaser of the system

Q: Does Howard Computers offer installation services with this system?

A: Yes, Howard Computers has a Network Services Group that can perform installation of systems, as well as network security analysis and other technical services. Call us today for a quote.

Q: Why such a long lead time?

A: Simply put -- because we custom build each system once ordered and then thoroughly test it to ensure it will meet and/or exceed our customer's expectations.

Q: Whom should I contact for support?

A: Remember, for non-Howard products (e.g., Panasonic, Motion, Fujitsu tablet), we direct customers directly to the applicable vendor.

The Howard Advantage!

With every Howard product purchase, you receive the following for FREE!

- Phone and web tech support for the LIFE of your system
- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute

HOWARD

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The Esteem SP1104 Server



When it comes to business, one size does not fit all. Howard knows that, so we build our servers accordingly. Howard's Esteem SP1104 is designed with small business in mind, with Intel® Xeon® scalable processors that can handle current needs and, yet, are powerful enough to manage expansion as your business grows.

The Esteem SP1104 provides a platform that delivers complete reliability and performance for small business workloads. And when you own your own server, you're in control, you don't pay someone else for the privilege of accessing your data. Your business data is located on-premises, enabling day-to-day data exchange without requiring email or Internet, making it quicker and more secure. With Howard's Esteem SP1104 server, your business is just that—*your business*.

Utilizing Intel's E-2100 processor family increases performance per rack-unit and reduces Total Cost of Ownership, making Howard's Esteem SP1104 an exceptional value.

Howard Servers are Good for Business!

Power, Performance, and Privacy
Priced right!



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Esteem SP1104 Server Specifications

Chipset

Intel® C246

Operating System

Microsoft Windows® 2019

Processors

Single socket H4 (LGA 1151) supports Intel® Xeon E-2100 series processors

System Memory

Up to 64GB of ECC UDIMM

Video

VGA

Storage

(4) SATA3 3.5"

SAS3 available via add-on module

Network

Dual LAN with I210-AT

Internal Ports

(1) PCI Express 3.0 x16 or 2X PCI Express 3.0 X8 slots (standard low profile)

(1) PCI-E 3.0 X 4 (in x 8) slot (standard low profile)

External Ports

Video Ports

(1) VGA port

RJ45 Ports

(2) RJ45 Gigabit Ethernet ports

(1) RJ45 dedicated IPMI Lan port

USB 3.1

(2) USB 3.1 rear

(2) USB 2.0 rear

Chassis Technical Specifications

Dimensions:

17.2W x 1.7H x 25.6"D (inches)

Drive Bays

(4) 3.5" Hot-Swap Drive bays

Form Factor

1U Rackmount

Weight 25lbs

PSU (2) 500W redundant

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

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- Phone hold times < 1 minute

SM1204

POWERED BY HOWARD INNOVATION



Space saving, energy efficient modular server

Boost day-to-day business operations with a better server, one that has more processing power, takes up less space, and uses less energy than similar models. Howard's SM1204 modular server does all that and more. Powered by Intel® Xeon® 2nd Generation Scalable processors, the SM1204 offers an architecture that meets current digital demands head-on and scales and adapts to handle emerging applications just as easily. Designed for density and cost-effectiveness of computing resources, this high-performance 1U system features two hot-pluggable modules to allow continuous operation, a 4TB memory capacity, and up to 4 drives per module. Additional options include Ethernet and Mellanox connections. Take care of current business needs and prepare for the future with the SM1204 modular server from Howard.

Howard servers are good for business!

FEATURES AND SPECIFICATIONS

Chipset

Intel® C621

Supported Operating Systems

Microsoft Windows® 2019 and 2016,
Vmware 6.5.0.d and above

Supported Processor Families

Intel® Xeon 1st and 2nd generation
scalable family

System Memory

Up to 4TB of DDR4 (12 Slots, DIMMs)
per module

Video

VGA

Storage

(4) SATA/SAS3 2.5" hot-swap drive bays
JBOD or RAID (0,1,5,10)
SATA DOM for operating system only

Network

1GB or 10GB Ethernet (RJ45 or SFP+)

Internal Ports

(2) PCI Express 3.0 X16 slots
(standard low profile)
(1) SIOM slot

External Ports

(1) VGA
(1) RJ45 Dedicated IPMI LAN port
(2) USB 3.0

Chassis Technical Specifications

Dimensions

17.2" (W) X 1.7" (H) X 28.25" (D)

Weight

Approximately 48.1lbs

Drive Bays

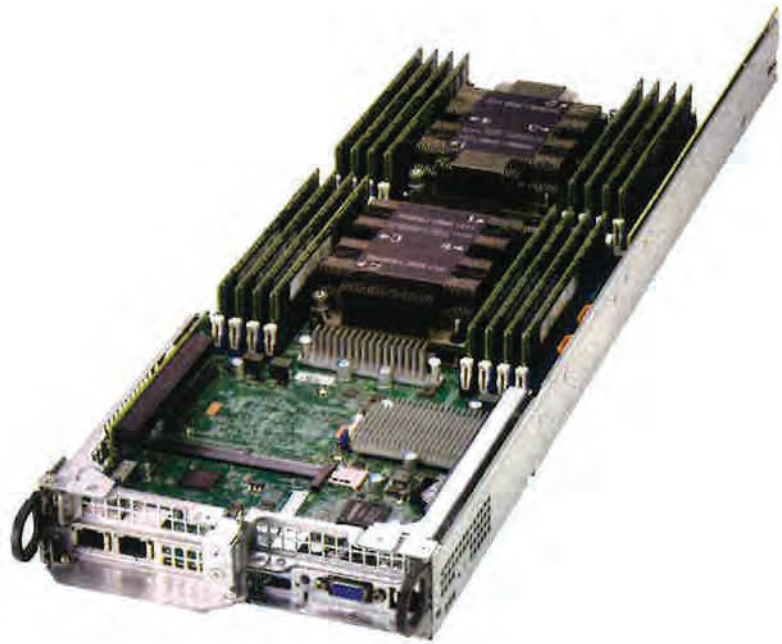
(4) 2.5" Hot-swap drive bays

Form Factor 1U Rackmount

PSU 1000W (2) Redundant power supplies

Optional Network Cards

1GB, 10GB Ethernet (RJ45 or SFP+),
Mellanox ConnectX-4, 40GB Ethernet



Warranty & Support

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Email at tech@howardcomputers.com, or

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HOWARD

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The SP480 Server



Make the most of your existing computer hardware and benefit from top-of-the-line data protection, scalability, and power management with the new SP480 pedestal server from Howard. The SP480 provides you with the complete reliability you need to manage, store, send, and process data 24-hours a day and has more built-in features and expandability options than comparable models. Its intelligent design begins with powerful Intel Xeon® processors that instantly adapt to constantly shifting workloads, reducing power consumption and increasing overall efficiency.

The SP480 comes equipped with ECC memory to protect against data corruption and uses Intel's Platform Trust and vPro™ technologies for built-in, hardware-enhanced security and remote manageability. Additional fail-safe technologies include hot-swappable hard-drives and RAID. Plan for future growth with Howard's SP480 server; it's the right way to grow!

Integrated RAID

Intel® Embedded Server RAID Technology and Intel Rapid Storage Technology support RAID levels 0/1/5/10—cost-effective redundancy without add-in cards

IPMI 2.0

Remote Control and Hardware Monitoring of CPU/system temperatures, fan speeds/ status, power supply status and chassis intrusion

Energy Efficient

Power enhancements for lower TCO and green initiatives



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Xeon® Scalable Processor Family CPU

SP480 4U Pedestal Server Specifications

Chipset

Intel® C622

Operating System

Windows® Server 2019/2016;

VMWare (ESXi 6.5) w/optional controller

Supported Processor Families

1st and 2nd Generation Xeon® scalable processor Family CPUs (LGA3647)

System Memory

Up to 4TB of ECC DDR (16 Slots)

Video

Integrated Graphics

Network

Dual 10GBase T with Intel® X/22 + X557

Internal Ports

(10) SATA 3

(16) PCI-E 3.0 Gen 3=4

(8) PCI-E 3.0 Gen 3=7

External Ports

(2) Serial

(2) USB 3.0

(4) USB 2.0

(2) LAN, 1GbE

(1) Video, VGA

Features

Integrated IPMI 2.0 for remote hardware management, power interface, and KVM over LAN

Optional

Supports M.2

Chassis Technical Specifications

Dimensions:

17.2" (437mm) x 7" (89mm) x 25.5" (648mm)

Backplane: Included

(8) External Hot-swap 3.5"

(3) 5.25" Drive Bays

(2) USBs front panel

PSU: 1280W (110v to 240v AC), Redundant

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
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- Phone hold times < 1 minute

FAQs:

Q: What is the operating system support in this server?

A: It supports Windows Server® 2019/ Windows Server 2016 as well as VMware (VMware is not available preinstalled)

Q: How will this product be supported?

A: This product will be supported through Howard's 100% US-based team of experts available 24 hours a day, 7 days a week for FREE for the life of the system to the original purchaser of the system

Q: Does Howard Computers offer installation services with this system?

A: Yes, Howard Computers has a Network Services Group that can perform installation of systems, as well as network security analysis and other technical services. Call us today for a quote.

Q: Why such a long lead time?

A: Simply put – because we custom build each system once ordered and then thoroughly test it to ensure it will meet and/or exceed our customer's expectations.

Q: Whom should I contact for support?

A: Remember, for non-Howard products (e.g., Panasonic, Motion, Fujitsu tablet), we direct customers directly to the applicable vendor.



Esteem SP180

POWERED BY HOWARD INNOVATION



Be Prepared for Future Growth

Business is all about growth, and Howard's Esteem SP180 expandable server is built for just that—to manage the day-to-day IT work processes that keep your business operating and on track for success. Designed for small to medium size businesses, this 2U rackmount server utilizes powerful Intel Xeon® 1st and 2nd Generation scalable processors, providing a single socket that can support up to 28 cores for seamless virtualization and maximum processing capabilities. It offers up to 1.5 TB of DDR4, up to a total of eight (8) 3.5" SATA/SAS hard drives, and supports RAID levels 0/1/5/10. Additional features include built-in data encryption, application memory protection, and more PCIe slots to meet your needs for higher bandwidth, greater flexibility, and better performance of networking devices. As business applications become more dependent on large amounts of data, reliability and security are paramount, and Howard's SP180 provides both, as well as the seamless connectivity, centralized storage, and scalability needed to help your business reach its full potential.

Howard servers are good for business!

Esteem SP180 2U Rackmount Server

Specifications

Chipset

Intel® C622

Operating System

Windows® Server 2019 & 2016

Supported Processor Families

1st and 2nd Generation Intel® Xeon Scalable Processor Family

System Memory

Up to 1.5TB of DDR4 (6 Slots, DIMMs)

Videos

VGA

Storage

(8) SATA/SAS 3.5" hot swap drive bays
JBOD or RAID (0,1,5,10) available
Optional controller required for SAS drives

Network

Dual 10GB Ethernet (RJ45)

Internal Ports

(4) PCI Express 3.0 X16 slots
(Full height, full Length)
(1) PCI Express 3.0 X 8
(Standard low profile)

External Ports

(1) VGA port
(2) USB 3.0 ports, 2 USB 2.0 ports
(1) RJ45 Dedicated IPMI I an port

Features

Integrated IPMI 2.0 for remote hardware management, power interface, and KVM over LAN

Optional

Supports M.2 and
2 fixed 2.5" NVMe/SSD/HDD

Chassis Technical Specifications

Dimensions:
17.2" (W) X 3.5" (H) X 25.6" (D)
Weight: 59lbs
(8) 3.5" Hot-swap drive bays
(2) USBs front panel
PSU: 500W Redundant power supplies

Warranty & Support

- Howard Technology Solutions' standard warranties apply.
- FREE customer and technical support to purchaser via telephone or web for the life of the system.
- Expedite your troubleshooting process by participating in our Howard Technical Partnership Program (HTPP) which certifies your staff to perform basic hardware service and support. Contact us today for more information.

Contact Howard Technology Solutions for world-class service and support.

Online: www.howardcomputers.com/support;
Phone: 1.888.323.3151
Email at tech@howardcomputers.com, or
Conventional mail at:

Howard Technology Solutions
36 Howard Drive
Ellisville, Mississippi 39437



HOWARDTM
TECHNOLOGY SOLUTIONS



SM2406

POWERED BY HOWARD INNOVATION



Scalable • Reliable • High-performance

Keep pace with increasing business demands and heavy workloads, easily and cost-effectively, with Howard's SM2406 modular server. This energy-efficient system is powered by Intel® Xeon® 2nd Generation Scalable processors and engineered to provide the high performance you need for database servers, virtualized office or school environments, rendering, and much more. It offers vPro technology for increased network security and remote management options. The system's 2U rack-mount form factor allows for dense storage options and features four hot-pluggable modules to facilitate continuous operation, a 4TB memory capacity, and up to six drives per module. Additional options include Ethernet and Mellanox connections. Howard's SM2406 can provide the IT infrastructure you need, now, and scale to meet the one you'll need in the future.

Howard servers are good for business!

SM2406 Server

FEATURES AND SPECIFICATIONS

Chipset

Intel® C621

Supported Operating Systems

Microsoft Windows® 2019 and 2016
VMWare 6.5.0.d and above

Supported Processor Families

Intel® Xeon 1st and 2nd generation scalable family

System Memory

Up to 4TB of DDR4 (12 slots, DIMMs)

Video

VGA

Storage

(6) SAS3 2.5 hot-swap drive bays
JBOD or RAID (0,1,5,10)
SATA DOM for operating system only

Network

1GB or 10GB Ethernet (RJ45 or SFP+)

Internal Ports

(2) PCI Express 3.0 x16 slots)
standard low profile
(1) SIOM slot

External Ports

(1) VGA
(1) RJ45 Dedicated IPMI LAN port
(2) USB 3.0 (rear)

Chassis Technical Specifications

Dimensions

17.25"(W) x 3.47"(H) x 28.5"(L) (inches)

Weight

Approximately 90lbs

Drive Bays

(6) 2.5" Hot-swap drive bays

Form Factor

2U Rackmount

PSU

2200W redundant power supply



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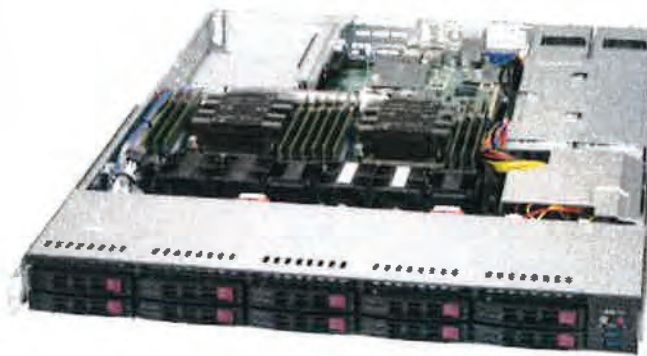
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HOWARD

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The SP1100 Server



Get the performance, capacity, and flexibility your business needs with Howard's newest server solution, the SP1100.

Intelligently powered by Intel® Xeon® scalable processors, the SP1100 is ideal for small and medium size businesses planning for future expansion. As a web server, network appliance, login server, and even a cloud workload server, the SP1100 delivers the speed and responsiveness you need to maintain your competitive edge. It features up to 3TB DDR4 memory, up to 10 hard drives, IPMI, and two 10 GbE network ports for super-fast connectivity. Now is the time to pave the way for future expansion. You can do it with the SP1100 from Howard.

Affordable? Yes. At a cost of no more than some desktop computers, you can get the right server—Howard's SP1100—at the right price.

Howard Servers—Good for Business!



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Performance, capacity, and flexibility

SP1100 Server Specifications

Chipset

Intel® C622

Operating System

Microsoft Windows® 2019 and
Windows 2016

Processors

Intel® 1st and 2nd generation Xeon scalable
processors

System Memory

Up to 3 TB of DDR4 RDIMM/LRDIMM
12 DIMM slots (6 per processor)

Video

VGA

Storage

8 SATA3 2.5"; 2 NVMe/SATA3 hybrid ports,
SAS3 available via add-on module

Network

Dual LAN with 10Gbase-T

Internal Ports

- (1) PCI Express 3.0x8 Low Profile Half Length
(Single or Dual Processor)
- (2) PCI Express 3.0x16 Full Height Half
Length (Dual Processor only)
- (1) PCI-E 3.0 X16 for add-on-module (SAS
3 storage controller- single or dual
processor)

External Ports

Video Ports

- (1) VGA port

RJ45 Ports

- (2) RJ45 10GBase-T ports
- (1) RJ45 dedicated IPMI Lan port

USB 3.0

- (6) USB 3.0 ports (4 rear, 2 front)

Chassis Technical Specifications

Dimensions:

17.2(W) x 1.7(H) x 23.5(D) (inches)

Drive Bays

(10) 2.5" Hot-swap drive bays

Form Factor

1U Rackmount

PSU

2 750W redundant

Warranty & Support

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The Howard Advantage!

With every Howard product purchase,
you receive the following for FREE!

- Phone and web tech support for the LIFE of your system
- 100% US-based, English-speaking customer support 24/7/365
- Phone hold times < 1 minute

FAQs

Q: What is LRDIMM?

A: LRDIMM is a load-reduction (LR) DIMM (used in servers) that supports higher densities than RDIMMs and contains a memory buffer (MB) chip, as opposed to a register, in order to reduce and minimize the load on the server memory bus. The memory buffer reduces each clock, command and address and data input to a single load, which increases the memory speed.

LRDIMMs are useful in memory-intensive applications in data centers, cloud computing and in high-performance computing (HPC) environments. LRDIMM is pin-compatible with existing DDR3 DIMM sockets and is JEDEC standard.

RX422SE

POWERED BY HOWARD INNOVATION



Professional Powerhouse

Get the workstation designed expressly for working professionals, Howard's RX422SE. This powerhouse is an expert fusion of form and function, with the level of high performance, reliability, and flexibility necessary for professional workloads—data-intensive work processes such as telemedicine, graphic design, film editing, transactional analysis, and advanced CAD applications. The RX422SE utilizes Intel's high-end Xeon W processor series, has up to 18 cores, and supports multiple graphic cards, allowing you to run numerous programs simultaneously and seamlessly. A rack mount setup not only protects your equipment from accidental damage, but also enhances built-in security features by making it accessible only to approved IT personnel. Additional benefits of a rack mount system include proper cooling and better power management, which translates to longer system life. Get the workstation powerhouse preferred by professionals, the Howard's RX422SE.

RX422SE Server

FEATURES AND SPECIFICATIONS

Chipset

Intel® C422

Supported Operating Systems

Microsoft Windows® 10

Supported Processor Families

Intel® Xeon W-2100 and W-2200 series

System Memory

Up to 512GB of DDR4 8 X DIMM DDR4
2666/2400/2133 RDIMM, LR-DIMM

Video

Supports Nvidia including 2-Way or 3-Way
SLI Technology

Audio

Realtek ALC S1220A 8-Channel
High-definition audio CODEC featuring
Crystal Sound 3

Storage

- (6) SATA 6GB/s ports; supports RAID 0, 1, 10
- (1) M.2 x 4 Socket type 2242, 2260, 2280,
22110 (PCIe 3.0 X4)
- (1) M.2 x 4 Socket type 2242/2260/2280
- (1) U.2 connector (bandwidth shared with M.2)

Network

- (2) 1GB based on Intel I210-AT

Internal Ports

- (2) PCIe 3.0 X16 (x16 mode)
- (2) PCIe 3.0 X16 (single at x16, dual at x8/x8)
- (1) PCIe 3.0 X4 (x4 mode)

External Ports

- (2) RJ45 1GB ports
- (2) USB 3.1 Gen 2 Type-A + USB Type-C
- (4) USB 3.1 Gen 1 (blue)
- (4) USB 2.0
- (1) Optical S/PDIF
- (1) USB BIOS Flashback Button
- (1) 8-channel Audio I/O

Chassis Technical Specifications

Dimensions

17.5"D X 16.9"W X 6.9" H

Weight

Approximately 28lbs

Drive Bays

- (1) External 3.5"
- (3) External 5.25"
- (4) Internal 3.5"
- (1) Slim ODD

Form Factor 4U Rackmount

PSU 1200W redundant power supply



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