pMCS portable PXIe Measurement & Control System
HW-1993

Compliant with PXIe/PXI bus standard specifications
HW-1993(G3) and HW-1993(G2) are available for selection

HW-1993(G3)
Built-in HOUWU® PXIe-9180 controller
Built-in HOUWU® 3U 9-slot PXIe Gen3.0 high-speed backplane
One 3U PXIe system slot
Seven 3U PXIe/PXI hybrid expansion slots and one 3U PXIe timing slot
System slot bandwidth 24GB/s, each expansion slot has a dedicated bandwidth 8GB/s

HW-1993(G2)
Built-in HOUWU® PXIe-9170 controller
Built-in HOUWU® 3U 9-slot PXIe backplane
One 3U PXIe system slot and eight 3U PXIe/PXI hybrid expansion slots
System slot bandwidth 8GB/s
Three 4GB/s expansion slots and five 2GB/s expansion slots

Compatible with PXIe/PXI modules such as data acquisition, modular instrumentation, aviation bus, FPGA, etc.
All aluminium-magnesium alloy reinforced compact design
Special impact resistant corners and reinforced silicone handles design
18.5" high-definition industrial display 1920x1080 resolution
Industrial resistive touch screen, industrial touch pad and waterproof silicone keyboard
AC power input with aviation connector design
PXIe cage retracted 150mm design
Supports NI PXIe SC module and TB terminal block built-in installation
Flexibly customizable IO interface with aviation connector

The industry's first high-performance 3U 9-slot PXIe ruggedized portable computer

HW-1993 is the industry's first 18.5" ruggedized portable computer with built-in embedded PXIe controller, PXIe backplane, high-definition industrial displays and ruggedized chassis. This platform adopts professional industrial appearance design, all aluminium-magnesium alloy structural reinforcement compact design, integrates 18.5" high-definition industrial display, industrial resistive touch screen, industrial touch pad, waterproof silicone keyboard and industrial power supply. It has the characteristics of high integration, robustness, portability, and is suitable for various harsh indoor and outdoor environments or complex working conditions where test equipment needs to be portable and mobile.

HW-1993(G3)
Built-in HOUWU® Intel® Xeon® eight-core, sixteen-thread CPU embedded PXIe controller, 3U 9-slot PXIe backplane, based on PCIe Gen3.0 technology, compliant with PXIe/PXI bus standard specifications, with one PXIe system slot, seven PXIe/PXI hybrid expansion slots (compatible with PXIe and PXI modules) and one PXIe timing slot. The system slot bandwidth is 24GB/s, each expansion slot has a dedicated bandwith 8GB/s.

HW-1993(G2)
Built-in HOUWU® Intel® Core™ 6th or 9th or 11th Gen i7 Quad-core eight-thread or six-core twelve-thread or eight-core sixteen-thread CPU embedded PXIe controller, 3U 9-slot PXIe backplane, based on PCIe Gen2.0 technology, compliant with PXIe/PXI bus standard specifications, with one PXIe system slot and eight PXIe/PXI hybrid expansion slots (compatible with PXIe and PXI modules). The system slot bandwidth is 8GB/s, providing three dedicated 4GB/s bandwidth PXIe/PXI hybrid expansion slots and five dedicated 2GB/s bandwidth PXIe/PXI hybrid expansion slots.

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HW-1993 is compatible with PXIe/PXI modules such as high-speed data acquisition, high-speed digitizer, digital multimeter, aviation bus, FPGA, RF and switch modules. This PXIe portable computer supports PWM fan speed control, according to the internal temperature of the chassis fan adaptive speed adjustment to the controller and module cooling.

HW-1993 makes full use of the characteristics of PXIe/PXI bus, such as stability, reliability, good compatibility, solid structure, large data throughput, high performance. According to the different project applications, this PXIe portable computer can be built with various PXIe/PXI modules to realize the test and measurement of microwave, radio frequency, high-speed digital, signal simulation, prototype verification, voltage, current, temperature, frequency, stress, strain, vibration, shock, audio, video and various aviation bus, etc. Users can quickly build various measurement, test and control system on this portable measurement & control platform, which is suitable for military defense, aerospace, weapons, electronics, ships and other field actual combat applications and scientific experimental research occasions.

Operating System	Windows® 7 Windows® 10
CPU	**HW-1993(G3)** Intel® Xeon® Processor D-1548 2.0GHz (12M Cache, up to 2.6 GHz) Octa-Core Sixteen-Threads **HW-1993(G2)** Intel® Core™ 6th Gen i7-6822EQ 2.0GHz (8MB Cache, up to 2.8GHz) Quad-Core Eight-Thread (Option 1) Intel® Core™ 6th Gen i7-6820EQ 2.8GHz (8MB Cache, up to 3.5GHz) Quad-Core Eight-Thread (Option 2) Intel® Core™ 9th Gen i7-9850HL 1.9GHz (9MB Cache, up to 4.1GHz) Six-Core, Twelve-Thread (Option 3) Intel® Core™ 9th Gen i7-9850HE 2.7GHz (9MB Cache, up to 4.4GHz) Six-Core, Twelve-Thread (Option 4) Intel® Core™ 11th Gen i7-11850HE 2.6GHz (24MB Cache, up to 4.7GHz) Octa-Core Sixteen-Thread (Option 5)
RAM	**HW-1993(G3)** 16GB DDR4 (upgradeable to 32GB/48GB) **HW-1993(G2)** 16GB DDR4 (upgradeable to 32GB/64GB)
Storage	**HW-1993(G3)** SATA 1TB SSD (upgradeable to 2TB) **HW-1993(G2)** Original dual solid state drive SSD design: 1, NVMe 250GB SSD x1 (system disk) (upgradeable to 1TB/2TB/4TB) 2, SATA3.0 1TB SSD x1 (data disk) (upgradeable to 2TB/4TB/8TB)
Link Configuration	**HW-1993(G3) with PXIe-9180 Controller** PCIe Gen3.0 Specification 2 Link mode: PCIe3.0 x16 + PCIe3.0 x8 **HW-1993(G2) with PXIe-9170 Controller** PCIe Gen3.0 Specification 2 Link mode: PCIe3.0 x8 + PCIe3.0 x8
LCD	18.5" high-definition industrial display with 1920x1080 resolution
Touch Screen	Industrial resistive touch screen
Backplane	**HW-1993(G3)** 3U 9-slot PXIe backplane based on PCIe Gen3.0 technology 1 PXIe system slot, 7 PXIe/PXI hybrid expansion slots and 1 PXIe timing slot System slot bandwidth 24GB/s, each expansion slot has a dedicated bandwidth 8GB/s **HW-1993(G2)** 3U 9-slot PXIe backplane based on PCIe Gen2.0 technology 1 PXIe system slot and 8 PXIe/PXI hybrid expansion slots System slot bandwidth 8GB/s, slots 2 through 4 bandwidth 4GB/s, slots 5 through 9 bandwidth 2GB/s

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IO	**HW-1993(G3)** LAN x2, USB3.0 x4, USB2.0 x2, RS232 x2, DP x2, SMB x1, LED x2 **HW-1993(G2)** LAN x2, USB3.0 x4, USB2.0 x2, RS232 x1, DP x2, VGA x1, SMB x1, RESET x1, LED x4 The PXIe cage retracts 150mm and the aviation connector IO adapter panel area is 255mm x 172mm
Key board	Waterproof Silicone Keyboard
Aviation Connector	Users can flexibly customize IO interfaces with aviation connectors for PXIe/PXI modules
Heat Dissipation	The fan supports PWM operation mode, adaptive speed regulation, active heat dissipation, and complies with PXIe/PXI bus standard specifications
Power Supply	400W, industrial grade, AC input, 90VAC~264VAC, 47Hz~63Hz, aviation connector design
Environment	Operating temperature: 0°C ~ 50°C (Commercial Grade) Operating temperature: -20°C ~ 60°C (Industrial Grade) Storage temperature: -40°C ~ 70°C Relative humidity: 5% ~ 95% (No Condensation)
Shock Resistance	30G peak, half-sine, 11ms pulse
Vibration Resistance	2.4Grms@5~500Hz (1 hour each in X, Y, Z directions)
Dimension	449 x 340 x 256 mm (excluding corners and handles)
Weight	**HW-1993(G3)** 16.4KG (including HOUWU® PXIe-9180 controller) **HW-1993(G2)** 15.9KG (including HOUWU® PXIe-9170 controller)
Packaging	Customized aviation trolley case
Category	pMCS, portable PXIe Measurement & Control System

Note: *Due to regular product upgrades, for more updated and accurate specifications and configuration information, please contact HOUWU TECHNOLOGY at +86-755-29982022.*

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