STACKRACK

SR108

MIL-STD-810G Rugged Fanless Computer with Ultra Vibration Proof

Intel® Core™ i7 Haswell Processor, SSD easy swap cage, mPCIe expansion, 9V to 36V DC-in, Extended Temp. -40~70°C

- MIL-STD-810G Vibration: 10 Grms, Shock: 75Grms
- 4th Generation Intel® Core™ i7 Haswell processors (BGA)
- DDR3 Up to 8GB XR-DIMM
- mSATA Up to 512GB
- Multi-Displays by 2 x DP, 1 x DVI-I
- 4 x RJ45 Intel® Gigabit Ethernet
- 4 x USB 3.0, 4 x COM ports (2x RS232/422/485, 2 x RS232)
- 9V~36V DC-in with power delay on/off
- Extended Temperature -40 to 70 °C
- Optional for wipe Rope vibration Isolator

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Specifications

Specifications	
High Performance Processor	Intel® 4th Gen Core™ i7-4700EQ (Frequency 2.4GHz, Turbo Boost Frequency up to 3.4GHz), Quad-Core, 8 Thread Support, 6MB SmartCache. Build-in HD Graphics 4600 for excellent 3D , Turbo Boost Technology 2.0 , VPro and Hyper-Threading support.
Memory	1 x SAMTEC XR-DIMM™ Rugged Memory connector (BTH-120-01-L-D-A) with Swiss-bit® DDR3 1600MHz XR-DIMM up to 8GB ECC SDRAM
Chipset	Intel® QM87 Chipset providing integrated USB 3.0 and supporting 4th generation Intel® Core™ processor families.
Expansion Slot	1 x Full-size miniPCIe (ACES 88911-5204M) , co-lay with mSATA for operating system, Rugged -40/+85C High Capacity Military-Grade mSATA up to 512GB. 1 x Onboard SIM Card slot (ASTRON 5190006-007-R) for 3.5G connectivity
Display	
DisplayPort	Resolution up to 3840 x 2160@60Hz
DVI-I	Resolution up to 1920 x 1200@60Hz
Storage	
mSATA	mSATA Solid State Disk (SSD) - up to 512GB Capacity. Rugged Industrial NAND Flash mSATA Storage w/ Rugged -40/+85C High Capacity, optional Pre-loaded with Linux or Windows OS. 64 / 128 / 256 / 512GB Innodisk 3MG2-P Series MLC SATA III 6Gb/s Flash SSD, Rated for 520 MB/sec Sequential Read ; 350 MB/sec Write Max.
HDD	1 x 2.5" SSD/HDD Tray
Ethernet	
Ethernet	4 x Intel Gigabit Ethernet LAN Interfaces (10/100/1000Mbps)
Rear I/O	
DisplayPort	2 x 20Pin External connectors (Female)
DVI-I	1 x 29Pin DVI-I connector (Female)
Ethernet	4 x RJ45 Gigabit Ethernet LAN Interfaces
Audio	2 x 3.5mm Audio Jacks (1 x MIC, 1 x Line-Out)
Serial Port	2 x DB9 connector (RS-232/422/485, jumper select)
USB Port	2 x USB3.0 standard-A connectors
Front I/O	
Button	Power Button
DC-IN	4P Rugged Terminal connector
Indicator LED	Power, HDD, LAN (Link/Active/Speed)
HDD Tray	1 x 2.5" SSD/HDD Tray
USB Port	2 x USB3.0 standard-A connectors
Serial Port	2 x DB9 connector (RS-232)

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Applications, Operating System	
Applications	Commercial and Military Platforms Requiring Compliance to MIL-STD-810G Embedded Computing, Process Control, Intelligent Automation and manufacturing applications where Harsh Temperature, Shock, Vibration, Altitude, Dust and EMI Conditions. Used in all aspects of the military.
Operating System	Microsoft Windows 7 Professional 32/64Bit, Microsoft Windows 8 Professional 32/64Bit, Ubuntu13.04, Ubuntu13.10, Ubuntu14.04, Fedora 20.
Physical	
Dimension (W x D x H)	262 x 149 x 76mm
Weight	4.11 Kg (9.04 lbs)
Chassis	Aluminum Alloy, Corrosion Resistant
Finish	Anodic aluminum oxide (Color Iron gray)
Cooling	Natural Passive Convection/Conduction. No Moving Parts.
Connectors	DC-IN : PHOENIX CONTACT 1776715 RJ45 Ethernet : RTB-19GB9J1A DVI-I : BANGSON DVI02-0123001-T DisplayPort : FOXCONN 3VD21203-H7U0-4 Audio : WTJ-035-67S1A01/ WTJ-035-67S1A02
Vibration Isolator	Wire Rope Isolator (Hongyuan GGT 2.1-23/GGT 2.7-25)
Ingress Protection	Dust Proof (Similar to IP54)
Environmental	
MIL-STD-810G Test	Method 507.5, Procedure II (Temperature & Humidity) Method 516.6 Shock-Procedure V Non-Operating (Mechanical Shock) Method 516.6 Shock-Procedure I Operating (Mechanical Shock) Method 514.6 Vibration Category 24/Non-Operating (Category 20 & 24, Vibration) Method 514.6 Vibration Category 20/Operating (Category 20 & 24, Vibration) Method 501.5, Procedure I (Storage/High Temperature) Method 501.5, Procedure II (Operation/High Temperature) Method 502.5, Procedure I (Storage/Low Temperature) Method 502.5, Procedure II (Operation/Low Temperature) Method 503.5, Procedure I (Temperature shock)
Reliability	No Moving Parts; Passive Cooling. Designed & Manufactured using ISO 9001/2000 Certified Quality Program.
EMC	CE and FCC compliance
Green Product	RoHS, WEEE compliance

Ordering Information

SR10B

MIL-STD-810G Rugged Computer with Intel® Core™ i7-4700EQ, 4 Gigabit LAN, 4 Serial port , 9V to 36V DC-in, Mini PCIe, high vibration / shock protection, Extended Temp. -40~70°C

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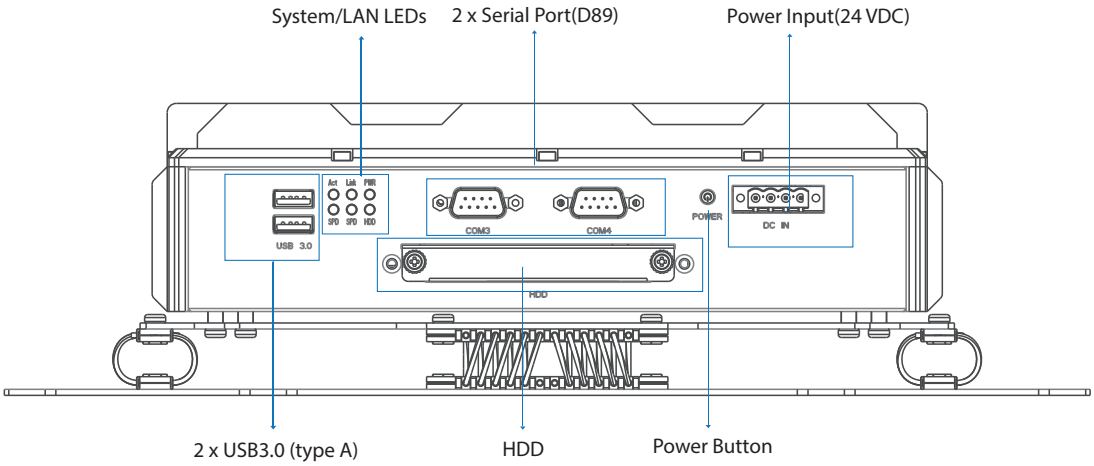
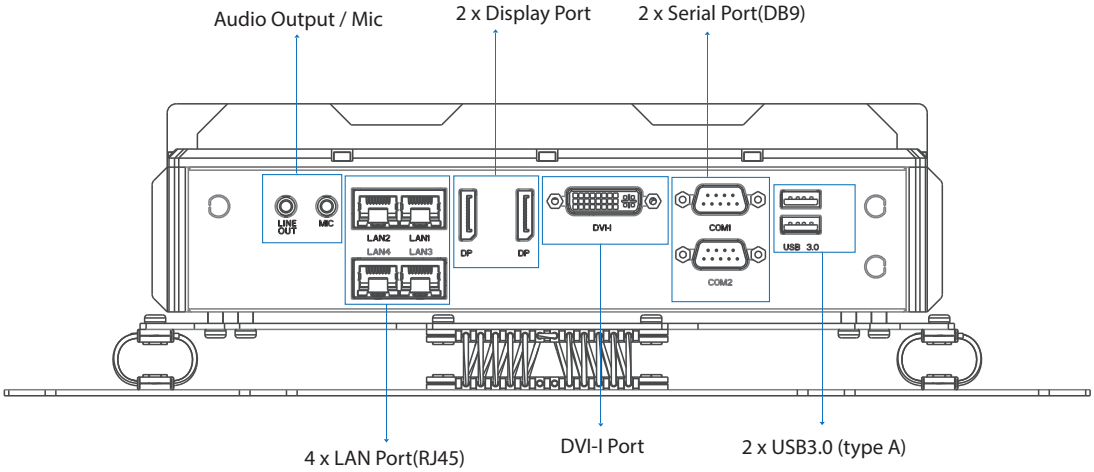
SR10B , a MIL-STD-810G Standard System highlights in its 4th Generation Haswell Core i7-4700QE Fanless System with easy accessible with SSD storage, rugged XR-DIMM RAM, rich I/O with 4 USB 3.0, 4 Com Port, 2 LAN 3 Video output and mPCIe expansion slot. Besides variety outputs, PERFECTRON has design an unique Wipe Rope Vibration Isolator for better vibration and shock resistance.

Appearance

Front Side



Back Side



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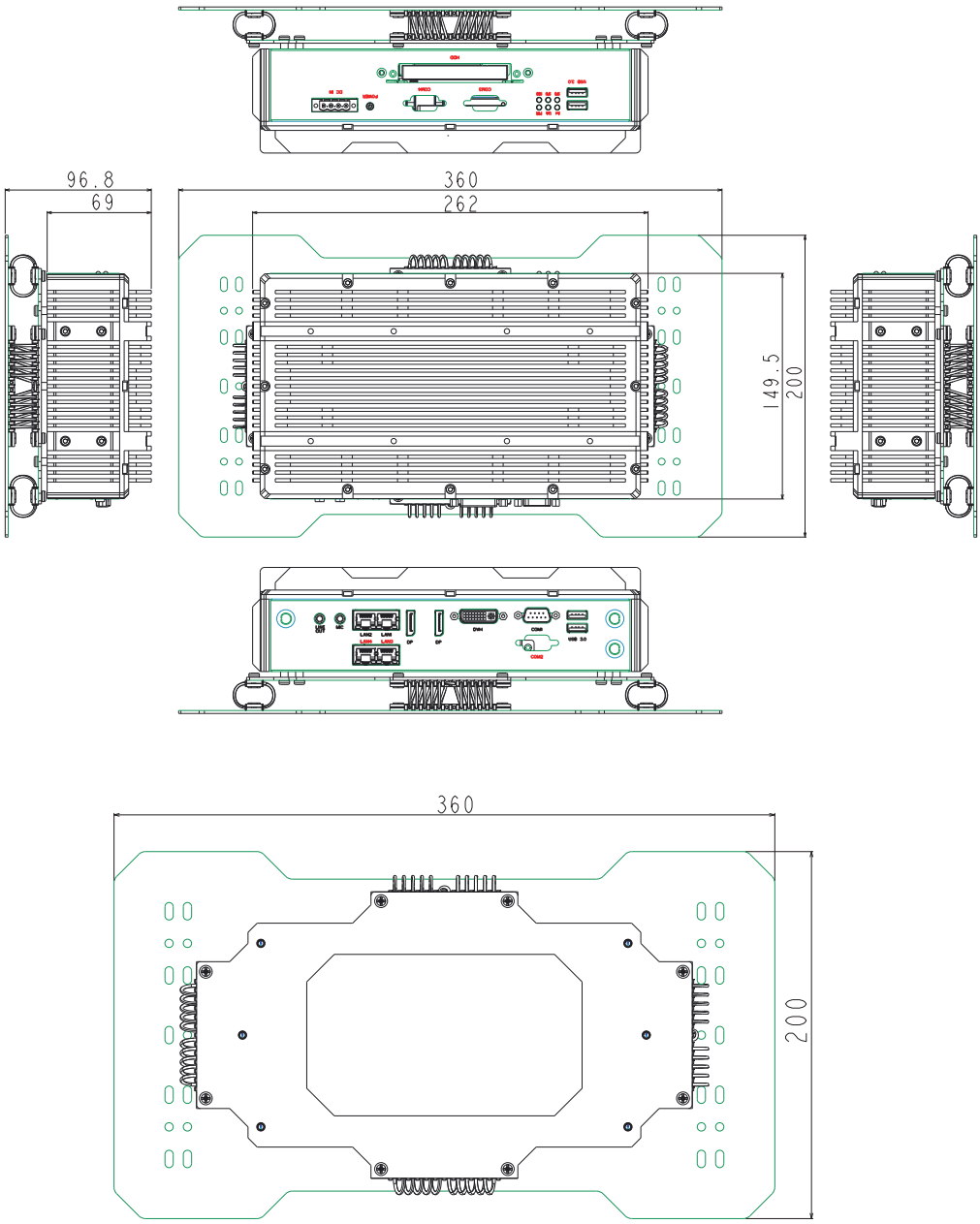
Dimensions



Wipe Rope Vibration Isolator

PERFECTRON has especially design a vibration isolator (Spring Bumper) for SR10B. The vibration isolator may sustain higher vibration resistance of the product itself. A vibration isolator may absorb and protect the object from vibration damage in any axes simultaneously, with the protection it may extended the product life operating under long hour vibration environment and vibration shock. The isolator is maintenance free and may unload whenever necessary.

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CPU Performance

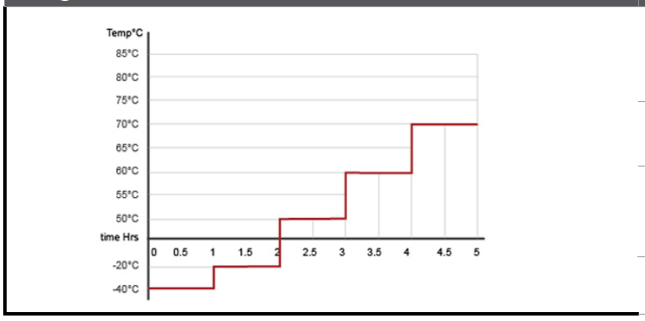
Test Configuration

Item	Device Information
CPU Type	Intel® Core i7-4700EQ (4C x 2.4Ghz), 6M Cache (47W)
PCH	Intel® QM87
Memory	8GB DDR3 1600 MHz XR DIMM
SATA PORT1	Innodisk 2.5" SATA SSD 3ME3 64GB
Test Software	Burnin test v7.1, Crystal DiskMARK3.03, Intel Extreme Tuning Utility Tuning Utility 4.3.0.11

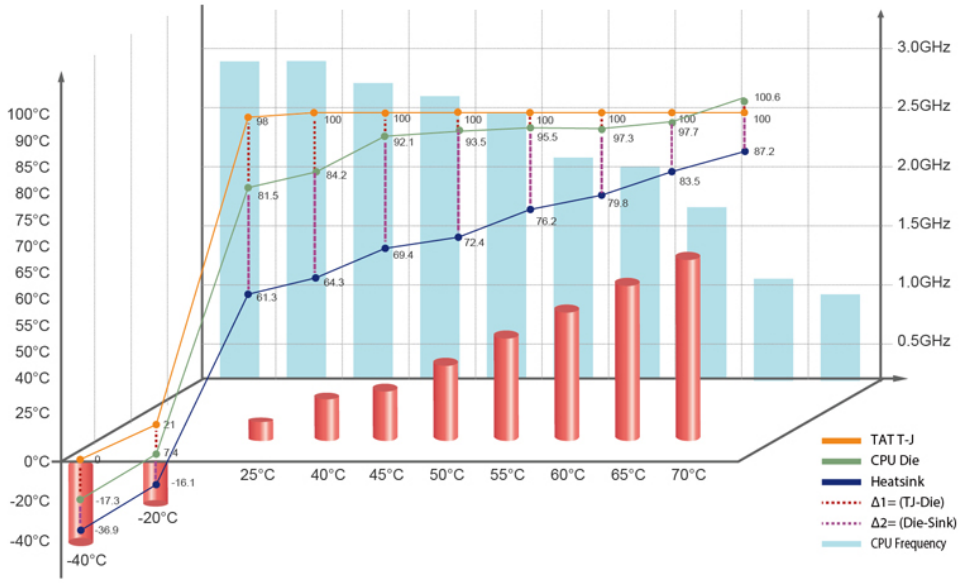
Test Result

Model	SR10B	Test Result	Pass
Tester	Ian Huang		

Diagram of curves



Test Temperature		Test Time
High	0~70°C	3Hours
Low	-40~0°C	2Hours
Test Standard		Reference IEC60068-2
Test Software		Burnin test v7.1
Criteria		After testing, system can't halt.



SR10-01B - IO Performance (-40 ~ 70)										
Point	-40℃	-20℃	25℃ Room temperature	40℃	45℃	50℃	55℃	60℃	65℃	70℃
CPU T-J	0	21	98	100	100	100	100	100	100	100
CPU Die	-17.3	7.4	81.5	84.2	92.1	93.5	95.5	97.3	97.7	100.6
Heatsink	-36.9	-16.1	61.3	64.3	69.4	72.4	76.2	79.8	83.5	87.2
Δ1= (TJ-Die)	17.3	13.6	16.5	15.8	7.9	6.5	4.5	2.7	2.3	-0.6
Δ2= (Die-Heatsink)	19.6	23.5	20.2	19.9	22.7	21.1	19.3	17.5	14.2	13.4
CPU Frequency	2.79	2.79	2.69	2.59	2.49	2.19	2	1.7	1.2	0.9

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