

SR100

INTEL® QM87 MIL-STD FANLESS RUGGED SYSTEM

INTEL® CORE™ I7 HASWELL PROCESSOR,
9V TO 36V DC-IN, WIDE TEMP. -40~70°C



- MIL-STD 810G COMPLIANCE
- 4TH GENERATION INTEL® CORE™ I7 HASWELL PROCESSORS (BGA)
- XR-DIMM UP TO 8 GB RAM
- ONBOARD USSD SATAIII UP TO 64 GB
- MULTI-DISPLAYS BY 2 x DP, 1 x DVI-I
- 2 x MPCIE EXPANSION SLOT (ONE CO-LAYOUT WITH MSATA)
- 2 x PCIE INTEL® GIGABIT ETHERNET
- 4 x USB 3.0, 1 x COM PORTS
- 9V~36V DC-IN WITH POWER DELAY ON/OFF
- EXTENDED TEMPERATURE -40~+70 °C

SPECIFICATIONS

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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	2 x Full-size miniPCle (ACES 88911-5204M) ,one 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 1 x FPE connector (SAMTEC SEAF-20-06.0-L-10-2-A-K-TR) 1 x StackPC connector (SAMTEC ASP-129637-03)
DISPLAY	
Display Port	Resolution up to 3840 x 2160@60 Hz
DVI-I	Resolution up to 1920 x 1200@60 Hz
STORAGE	
uSSD	Onboard uSSD SATAIII up to 64 GB
mSATA	mSATA Solid State Disk (SSD) - up to 512GB Capacity. Rugged Industrial NAND Flash mSATA Storage w/ Rugged -40/+85°C 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.
ETHERNET	
Ethernet	2 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	2 x RJ45 Gigabit Ethernet LAN Interfaces
Audio	2 x 3.5mm Audio Jacks (1 x MIC, 1 x Line-Out)
Serial Port	1 x DB9 connector (RS-232/422/485)
USB Port	2 x USB3.0 standard-A connector
FRONT I/O	
Button	1 x Power Button, 1 x Reset Button
DC-IN	4P Rugged Terminal connector
Indicator LED	Power, HDD, LAN (Link/Active/Speed)
USB Port	2 x USB3.0 standard-A connector

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)	250 x 149 x 76mm
Weight	3.4 Kg (7.48 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
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

SR100-ET

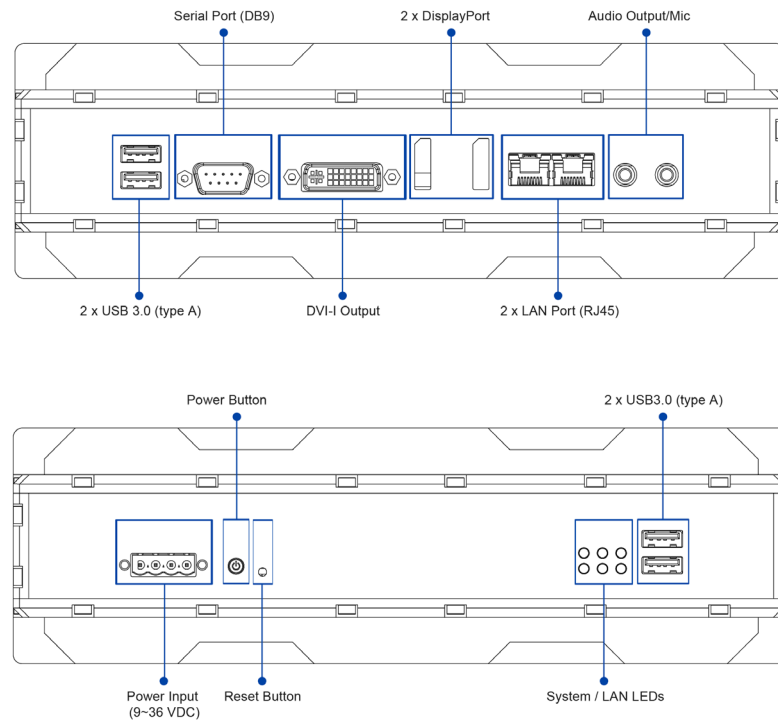
MIL-STD-810G RUGGED COMPUTER WITH INTEL® CORE™ I7-4700EQ, 9V TO 36V DC-IN, MINI PCIE, EXTENDED TEMP. -20~60°C

SR100-UT

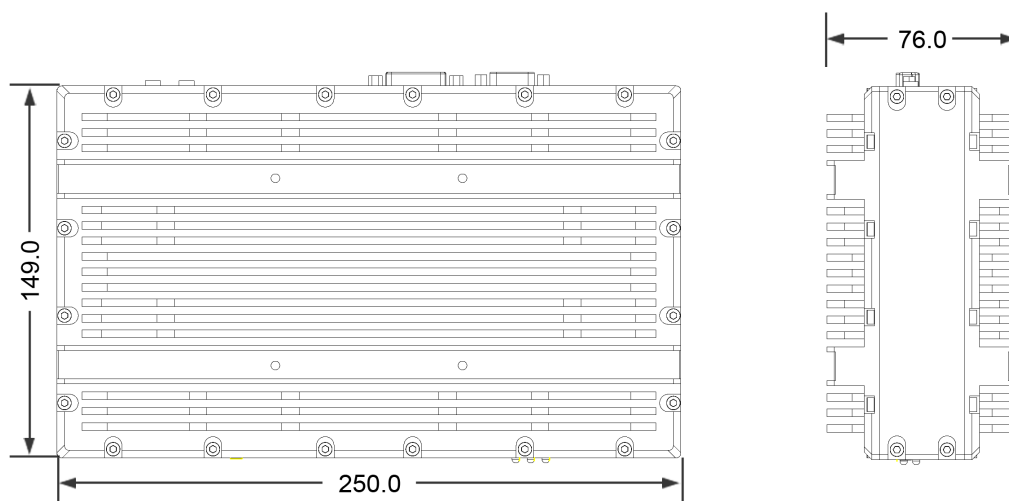
MIL-STD-810G RUGGED COMPUTER WITH INTEL® CORE™ I7-4700EQ, 9V TO 36V DC-IN, MINI PCIE, EXTENDED TEMP. -40~70°C

SR100 , INTEL® QM87 MIL-STD FANLESS RUGGED SYSTEM
WITH INTEL® CORE™ I7 HASWELL PROCESSOR, 9V TO 36V DC-IN,
WIDE TEMP. -40~70°C

APPEARANCE



DIMENSIONS



CPU PERFORMANCE

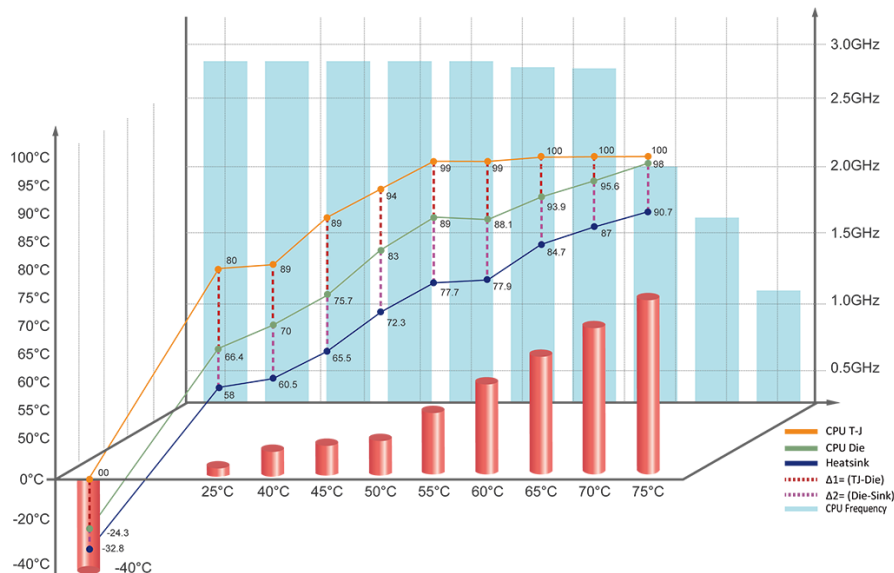
TEST CONFIGURATION

ITEM	DEVICE INFORMATION
CPU Type	Intel® Core i7-4700EQ 2.40GHz
PCH	Mobile Intel QM87 Express Chipset
Memory	Swissbit XR-DIMM 4 GB DDR3-1600
port3 SATAII	Innodisk 3ME3 mSATA 64GB
Test Software	Burnin test v6.0, AS SSD Benchmark, Intel Extreme Tuning Utility 4.3.0.11

TEST RESULT

Model	SR100	Test Result	Pass
Tester	Ian Huang		

Diagram of curves	Test Temperature	Test Time
	High	0~75°C 5Hours
	Low	-40~0°C 2Hours
	Test Standard	Reference IEC60068-2
	Test Software	Burnin test v6.0
	Criteria	After testing, system can't halt.



SR100 MB HeatSink - IO Performance										
Point	-40°C	25°C Room temperature	40°C	45°C	50°C	55°C	60°C	65°C	70°C	75°C
CPU T-J	0	80	81	89	94	99	99	100	100	100
CPU Die	-24.3	66.4	70	75.7	83	89	88.1	93.9	95.6	98
Heatsink	-32.8	58	60.5	65.5	72.3	77.7	77.9	84.7	87	90.7
Δ1= (TJ-Die)	24.3	13.6	11	13.3	11	10	10.9	6.1	4.4	2
Δ2= (Die-Heatsink)	8.5	8.4	9.5	10.2	10.7	11.3	10.2	9.2	8.6	7.3
CPU Frequency	2.79GHz	2.79GHz	2.79GHz	2.79GHz	2.79GHz	2.6GHz	2.59GHz	2GHz	1.6GHz	1.1GHz