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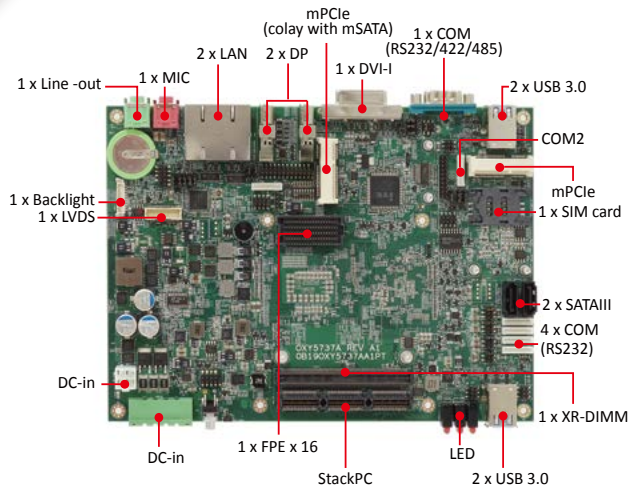
PERFECTRON

Intel® Haswell QM87 EBX SBC, Core i7/i5/i3 CPU & SSD Soldering
Onboard, Stackable with PCIe/104 & FPE Expansion,
Extended Temperature -20°C to 70°C (- 40°C to 85°C optional)



**EXTENDED
TEMPERATURE**

it's perfect!



Main Features

- Intel® 4th Generation Haswell Core™ i7/i5/i3 processors on board
- Stackable Expansions : 1 x PCIe_16 (FPE), 4 x PCIe_1 (PCIe/104)
- DDR3 XR-DIMM up to 8 GB RAM
- Onboard nano SATAIII SSD up to 64 GB
- Multi-Displays by 2 x DP, 1 x DVI-I, 1 x Dual Channel 24-bit LVDS
- 2 x mPCIe Expansion slot (One Co-Layout with mSATA)
- 2 x PCIe Intel® Gigabit Ethernet
- 4 x USB 3.0, 2 x USB 2.0, 6 x COM , 2 x SATA III
- +9V~36V DC-in with power delay on/off
- Extended Temperature -20 to 70 °C (-40 to 85°C optional)

Specifications

System

CPU Type	Intel® Haswell Core™ i7/i3, BGA type Core i7-4700EQ (4C x 3.4/2.4GHz), 6M Cache, (47W) Core i5-4400E (2C x 3.3/2.7GHz), 3M Cache, (37W) Core i3-4102E (2C x 1.6 GHz), 3M Cache (25W)
Chipset	Intel® Haswell QM87 PCH
Memory Type	1 x DDR3 XR-DIMM up to 8 GB
Onboard SSD	Onboard nano SATAIII SSD up to 64GB
BIOS	AMI® UEFI BIOS
Super I/O	ITE8786
Watchdog	1-255 sec. or 1-255 min. software programmable can generate system reset
Expansion Slot	2 x mPCIe (1 x SIM card, 1 x colay with mSATA)

Display

Chipset	Integrated GFX in Haswell processor
DVI-I	Yes (Max. resolution 2048 x 1536)
LVDS	Dual channel 24-bit LVDS
Display Type	2 x DP, LVDS, DVI-I (DVI-D+VGA)

Ethernet

Chipset	Intel® I210-IT & I217-LM GbE
WOL	Yes
Boot from LAN	Yes for PXE

Power Requirements

Input Voltage	9 to 36 VDC (4-pin terminal block for V+, V+, V-, V-)
Power Consumption	without LVDS output
With No Load on 4 USB ports	4A@9VDC, 45W 1.6A@24VDC, 45W 1.1A@36VDC, 45W
With Full Load on 4 USB Ports	5A@9VDC, 45W 1.875A@24VDC, 45W 1.25A@36VDC, 45W

Audio

Codec	Realtek ALC887 High Definition Audio Codec
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Rear I/O

DP	2
DVI-I	1
LAN	2 x RJ45
COM	1 x RS232/422/485 with 5V/12V selectable
USB	2 x USB 3.0
Audio	1 x MIC, 1 x Line out
Power Connector	1 (Terminal Block)

Internal I/O

Front Panel	1 (2 x 5-pin)
Smart Fan	1 x CPU Fan, 1 x System Fan
Power Connector	2 (1 x 4-pin/ 2 x 2-pin)
SATA	2 x SATAIII (6 Gb/s)
USB	2 x USB 2.0 by pin header
COM	5 x COM ports 4 x RS232, 1 x RS232/422/485, all with 5V/12V selectable
LVDS	2 x 15-pin
DIO	2 x 10-pin, 8 in/8 out with isolation
SIM card holder	1

Mechanical and Environment

Form Factor	EBX
Power Type	9V to 36V DC-in, AT/ATX mode supports with power delay on/off
Dimension	203 x 146 mm (5.75" x 8")
Operating Temp.	-20 to 70°C
Storage Temp.	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing

► Block Diagram

