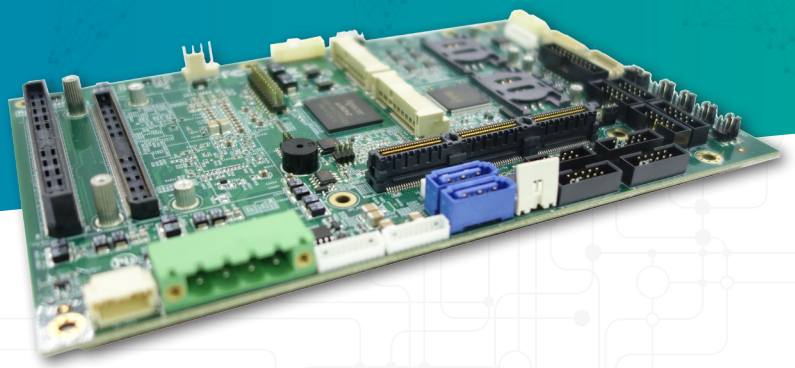
PERFECTRON

OXY5638B

Intel® 5th Gen. Broadwell ® Core™ i7-5650U processors

16GB DDR III, uSSD 64GB on board , PCIe/104 expansion, Extended Temperature -40 to 85°C



Extended Temperature
+85°C
-40°C

CPU Full Speed
HIGH

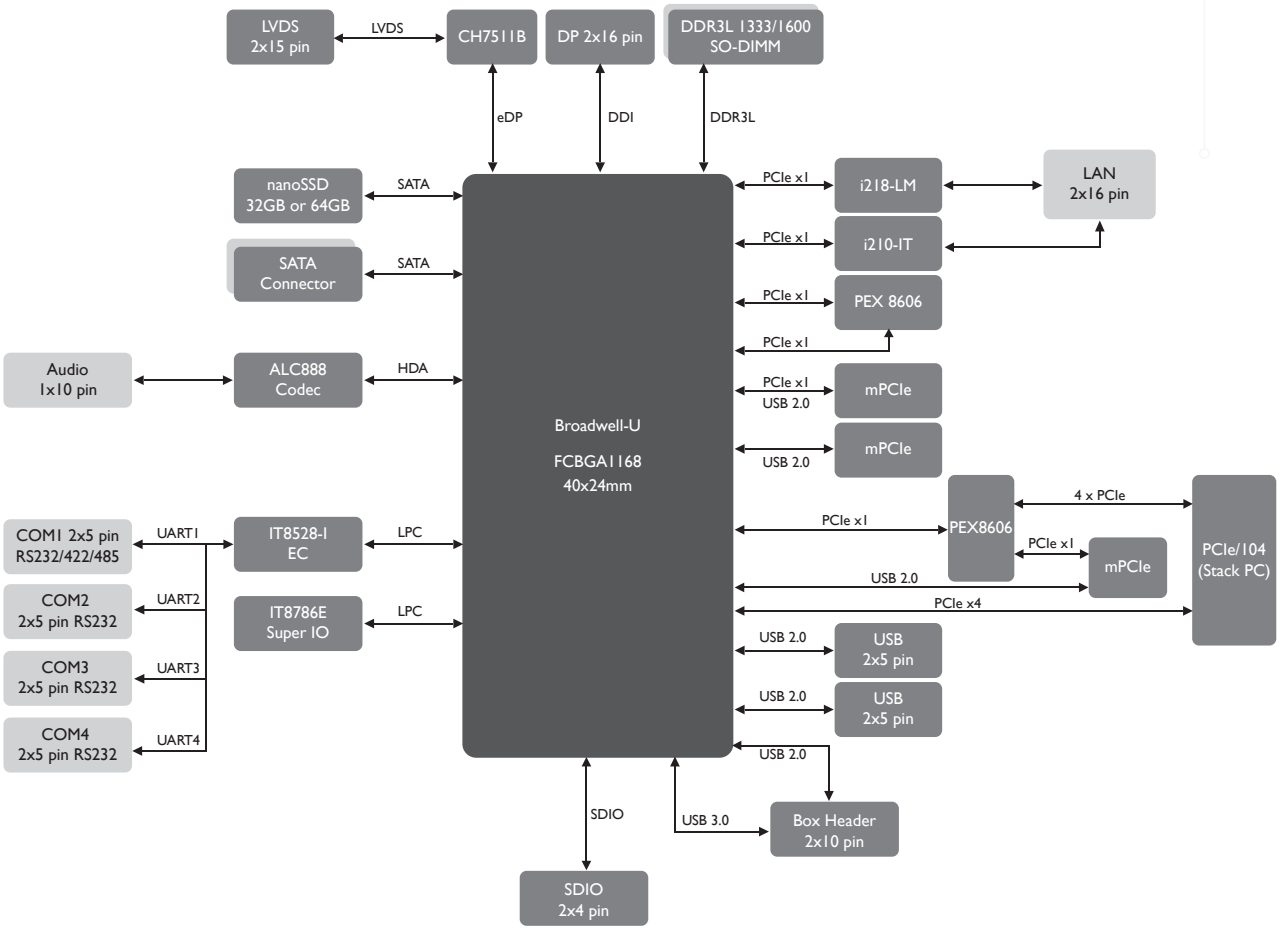
- Support Intel® Broadwell Core™ i7-5650U/i5-5350U/i3-5010U Processor
- Apacer/Smart uSSD 64GB (SATA III)
- 2 x XR-DIMM up to DDR III -1600 16GB
- Expansion :1x PCIe/104 (1 x PCIe_4, 4 x PCIe_1)
- 2x Mini PCIe (2 x PCIe/USB 2.0) with 2 SIM Card Holder
- Multi display:3 x DisplayPort ; Dual Channel 24 Bit LVDS
- Dual LAN Ports (1 x Intel I210IT & 1 x i218-LM GbE)
- 4 x COM ports: 3 x RS-232 with 5V/12V selection, 1 x RS232/422/485 with 5V/12V selection
- 6 x USB ports: 2 x USB 3.0, 4 x USB 2.0
- Extended operating temp. -40~+85°C

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OXY5638B

OXY5638B a powerful rugged EPIC SBC is driven by Intel® Broadwell processor i3-5010U, i5-5350U and i7-5650U soldering onboard. Broadwell processors support outstanding graphics and CPU performance, providing quad cores 3.20GHz clock speed while consuming low power consumption. The powerful combination makes the SBC with high computing power for multi-tasking while reducing idle power consumption. OXY5638B is regarded as a rich-featured board that can be applied to cater various I/O requirements. Mission-critical applications can take the advantages of processors soldering onboard and extended operating temperature from -40 to 85°C to ensure ultimate durability, utmost resistance to shock & vibration. OXY5638B is truly a rugged SBC ideal for building rugged tablet, entry-level automation and railway infotainment applications. The Intel Core i7-5650U is an ULV (ultra low voltage) dual-core processor based on the Broadwell architecture, which has been launched in January 2015. In addition to two CPU cores with Hyper-Threading clocked at 2.2 - 3.2 GHz (2 Cores: 3.1 GHz), the chip also integrates an HD Graphics 6000 GPU and a dual-channel LPDDR3-1866/DDR3L-1600 memory controller. The Core i7 is manufactured in a 14 nm process with FinFET transistors. Compared to the Core i7-5600U, the i7-5650U features a lower CPU base clock, but integrates a somewhat faster GPU.

Blockdiagram



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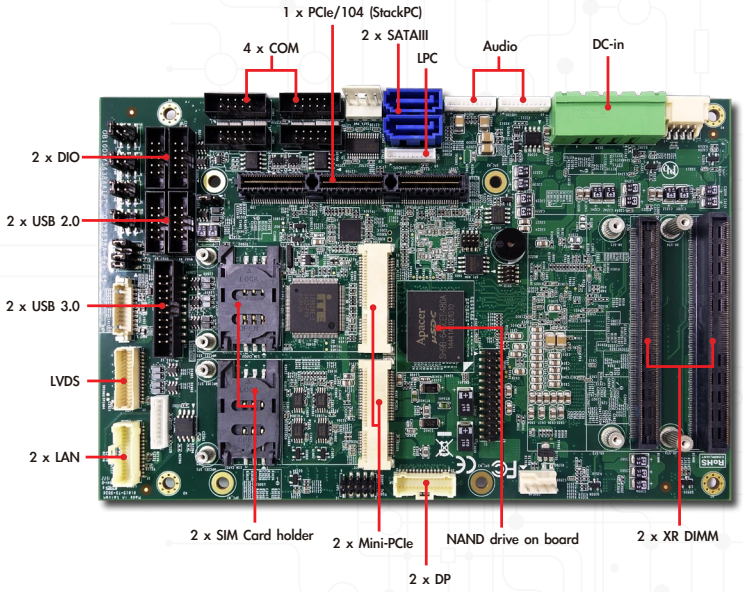
OXY5638B

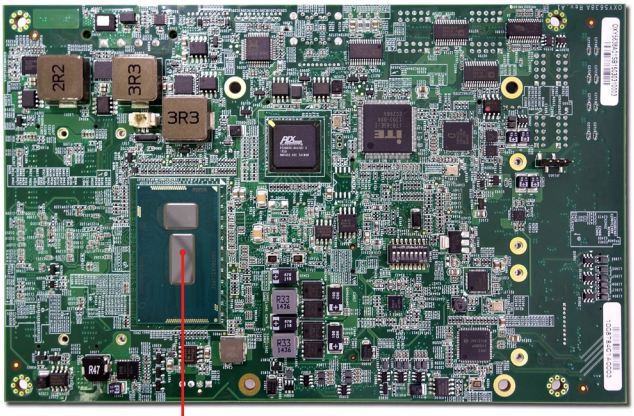
Thermal solution

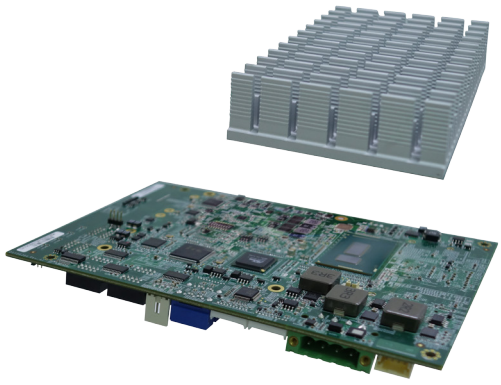
Design your own system (I/O PIN header)

OXY5638B embraces rich I/O that provides rugged system developers diverse flexibility in I/O configurations for rugged applications.The versatile expansion compatibility are designed by onboard PIN header thus can supports customisation for IP67 MIL-STD connectors' design.

The rich I/O features multiple displays, 2 x DP and VGA connectivity ports with dual channel 24-bit LVDS. This feature-rich board comes with a variety of I/O, including six RS232, three USB ports, two Gigabit LANs, two SATAII, all these can help system integrators to develop solutions quickly. Viewing the popularity of 3G and touch panel usage, OXY5638B offers optimal choices for multi-function, such as onboard SIM Card slot for 3.5G connectivity and onboard Pen Mount 6000 resistive touch controller for connecting touch panel. The versatile expansion compatibility also includes two full-size miniPCIe that could add on additional I/O or additional functionality.







Thermal solution for fanless system design

Heat sinks are used to cool down device temperature by dissipating heat into surrounding air. PERFECTRON designs tailor-made heat sink for OXY5638B. Special fin ditch design forms a wind-flow to reduce thermal resistance. Moreover, cross section wave line on the interface increases up to 30-40% air contact area. Combining these two features, thermal performance leverages to utmost that ensures high reliability and stability while working under wide range temperature from -40 up to 85°C.

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OXY5638B

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System	
CPU	Intel® Core™ i3-5010U Processor (3M Cache, 2.10 GHz)
	Intel® Core™ i5-5350U Processor (3M Cache, up to 2.90 GHz)
	Intel® Core™ i7-5650U Processor (4M Cache, up to 3.20 GHz)
Memory Type	2 x XR-DIMM up to 16 GB
NAND Flash	64 GB SATA NAND drive on board
BIOS	AMI®UEFI BIOS
Watchdog	1-255 sec. or 1-255 min. software programmable, can generate system reset
Expansion Slot	1 x PCIe_4, 4 x PCIe_1
	2 x mPCIe/USB 2.0
Display	
Chipset	Intel® Gen8 Graphic
LVDS	Dual channel 24bit LVDS (eDP LVDS CH7511B)
Display Type	LVDS, DP
Ethernet	
Chipset	1 x Intel I210IT & 1 x i218-LM GbE
WOL	Yes
Boot from LAN	Yes for PXE
Power Requirements	
Power Type	12V DC-in (1 (Terminal Block co-lay 4-pin connector with lock)
Audio	
Codec	Realtek ALC888S
Rear I/O	
Power Connector	1 (Terminal Block co-lay 4-pin connector with lock)

Internal I/O	
SATA	2 x SATAIII (6Gb/s, RAID 0/1)
COM	3 x RS-232 (pin-header) with 5V/12V selection
	1 x RS232/422/485 with 5V/12V selection
Serial Signals	RS232: DCD-, RXD, TXD, DTR-, GND, DSR-, RTS-, CTS-
	RS422: TX-, RX+, TX+, RX-, GND
	RS485: DATA-, DATA+, GND
Ethernet	2 (pin header)
USB 3.0	2 (pin header)
USB1.1/2.0	4 (pin header)
Audio	Pin-header for Line-out, Mic-In, Line-in *optional 2 Mic-in
SIM card holder	2
DIO	2 (2x5-pin), 8 in / 8 out
LPC	Pin-header
LVDS	1 (2 x 15-pin)
DP	2 (Vertical)
Mechanical and Environment	
Form Factor	EPIC SBC
Power Type	12V DC-in
Dimension	170 mm x 115 mm
Operating Temp.	-40 to 85°C
Storage Temp.	-40 to 85°C
Relative Humidity	10% to 90%, non-condensing

Ordering information

OXY5638B

Intel® Broadwell processor ® Core™ i3-5010U/i5-5350U/i7-5650U processors on board, 2 x XR-DIMM, Apacer/Smart uSSD 64GB (SATA III), +12V DC-in, Extended Temperature -40 to 85°C

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