

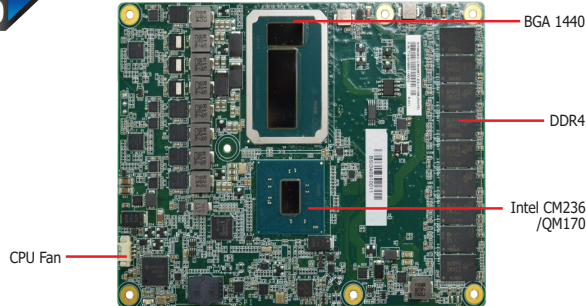


**6th Gen Intel® Xeon®/Core™ Processor
COM Express® Basic**



SH960MD-CM236/QM170

**CM236
QM170**



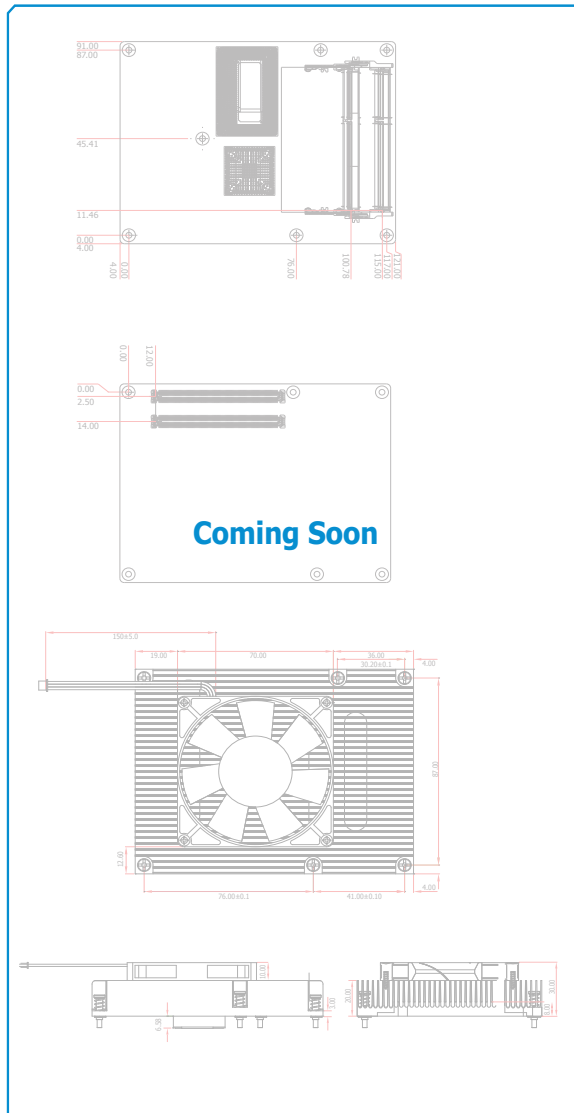
Features

- **Dual channel DDR4 2133MHz onboard Memory up to 16GB**
- **Four display ports: VGA*/DDI + LVDS*/eDP + 2 DDI**
Supports three independent displays
- **eDP resolution supports up to 4096x2304 @ 60Hz**
- **Multiple expansion: 1 PCIe x16, 8 PCIe x1**
- **Rich I/O: 1 Intel GbE, 4 USB 3.0, 8 USB 2.0**

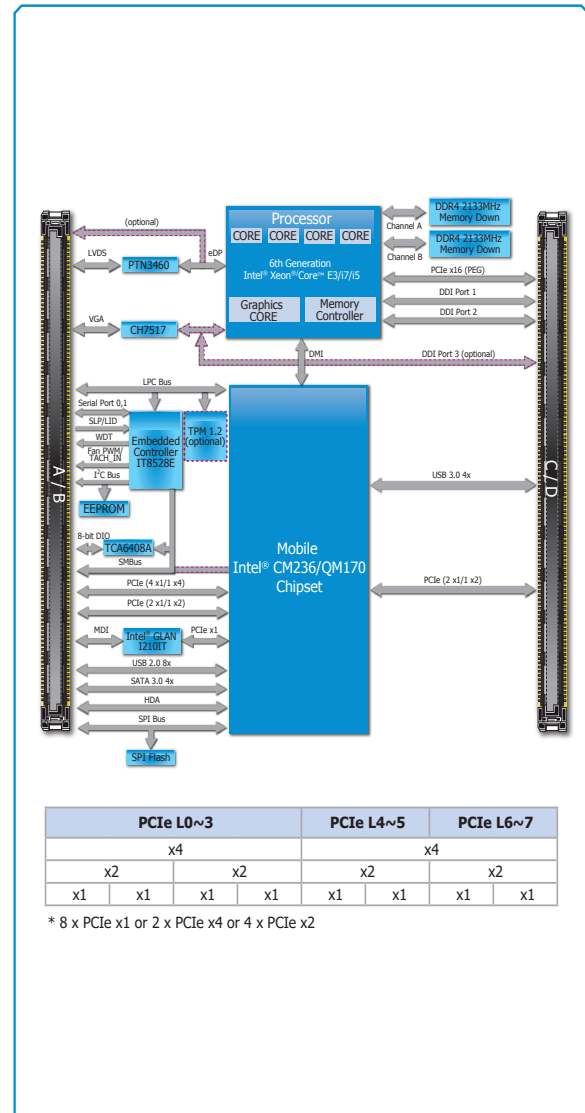
* Populated by default



Mechanical Drawing



Block Diagram





Specifications

SYSTEM	Processor	6th Generation Intel® Core™ Processors, BGA 1440 Intel® Xeon® E3-1515M v5 Processor, Quad Core, 8M Cache, 2.8GHz (3.7GHz), 45W (Support ECC) Intel® Core™ i7-6820EQ Processor, Quad Core, 8M Cache, 2.8GHz (3.5GHz), 45W Intel® Core™ i5-6442EQ Processor, Quad Core, 6M Cache, 1.9GHz (2.7GHz), 25W Intel® Core™ i3-6100E Processor, Dual Core, 3M Cache, 2.7GHz, 35W (Support ECC) Intel® Celeron® Processor G3900E, Dual Core, 2M Cache, 2.4GHz, 35W (Support ECC)	
	Chipset	Intel® CM236 Chipset	Intel® QM170 Chipset
	Memory	8GB/16GB DDR4 Memory Down	Dual Channel DDR4 2133MHz
	BIOS	Insyde SPI 128Mbit	
	Controller	Intel® HD Graphics	
GRAPHICS	Feature	OpenGL up to 4.4, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9 HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9	
	Display	1 x VGA/DDI (DDI available upon request) 1 x LVDS/eDP (eDP available upon request) 2 x DDI (HDMI/DVI/DP++)	VGA: resolution up to 1920x1200 @ 60Hz LVDS: dual channel 24-bit, resolution up to 1920x1200 @ 60Hz HDMI: resolution up to 4096x2160 @ 24Hz or 2560x1600 @ 60Hz DVI: resolution up to 1920x1200 @ 60Hz DP++/eDP: resolution up to 4096x2304 @ 60Hz
	Triple Displays	VGA + LVDS + DDI or VGA + DDI1 + DDI2	eDP + 2 DDI (available upon request)
	Interface	1 x PCIe x16 or 2 x PCIe x8 (Gen 3) 8 x PCIe x1 or 2 x PCIe x4 or 4 x PCIe x2 (Gen 3) 1 x LPC 1 x I ² C 1 x SMBus 2 x UART (TX/RX)	
	Interface	HD Audio	
AUDIO	Controller	1 x Intel® I210IT (10/100/1000Mbps)	
ETHERNET	USB	4 x USB 3.0 8 x USB 2.0	
	SATA	4 x SATA 3.0 (up to 6Gb/s)	RAID 0/1/5/10
	DIO	1 x 8-bit DIO	
	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds	
WATCHDOG TIMER	TPM	Available Upon Request	
SECURITY	Type	12V, 5VSB, VCC_RTC (ATX mode)	12V, VCC_RTC (AT mode)
POWER		Windows 8.1 64-bit Windows 7 (/WES7) 32/64-bit Windows 10 IoT Enterprise 64-bit	Debian 8 (with VESA graphic driver) CentOS 7 (with VESA graphic driver) Ubuntu 15.10 (Intel graphic driver available)
OS SUPPORT	Temperature	Operating: 0 to 60°C -40 to 85°C	Storage: -40 to 85°C
ENVIRONMENT	Humidity	Operating: 5 to 90% RH	Storage: 5 to 90% RH
	MTBF	TBD	
	Dimensions	COM Express® Basic	95mm (3.74") x 125mm (4.9")
MECHANICAL	Compliance	PICMG COM Express® R2.1, Type 6	

Ordering Information

Model Name	P/N	Processor	Memory	VGA/DDI	LVDS/eDP	GbE	USB 3.0	USB 2.0	Power	Thermal	Temp.	Coating
SH960MD-CM236T1-E3-1515M	770-SH96M1-000G	E3-1515M	16G onboard	VGA	LVDS	1	4	8	ATX/AT	Cooler	-40 to 85°C	Upon Request
SH960MD-QM170T8-6442EQ	770-SH96M1-100G	i5-6442EQ	8G onboard	DDI	eDP	1	4	8	ATX/AT	Cooler	-40 to 85°C	Upon Request
SH960MD-QM170T1-6820EQ	770-SH96M1-200G	i7-6820EQ	16G onboard	VGA	LVDS	1	4	8	ATX/AT	Cooler	-40 to 85°C	Upon Request
SH960MD-HM170T8-6100E	770-SH96M1-300G	i3-6100E	8G onboard	VGA	LVDS	1	4	8	ATX/AT	Cooler	-40 to 85°C	Upon Request
SH960MD-CM236T8-G3900E	770-SH96M1-400G	G3900E	8G onboard	VGA	LVDS	1	4	8	ATX/AT	Cooler	-40 to 85°C	Upon Request

Note: HALT test, shock/ vibration test and conformal coating are optional for the application in especially harsh environments.

Packing List

• 1 SH960MD-CM236/QM170 board	
• 1 DVD	
• 1 Cooler (Height: 36.58mm)	A71-111101-000G

Optional Items

• COM332-B carrier board kit	770-CM3321-000G
• Heat spreader (Height: 11mm)	TBD

Assured Systems

Assured Systems is a leading technology company with over 1,500 regular clients in 80 countries, deploying over 85,000 systems to a diverse customer base in 12 years of business. We offer high-quality and innovative rugged computing, display, networking and data collection solutions to the embedded, industrial, and digital-out-of-home market sectors.

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