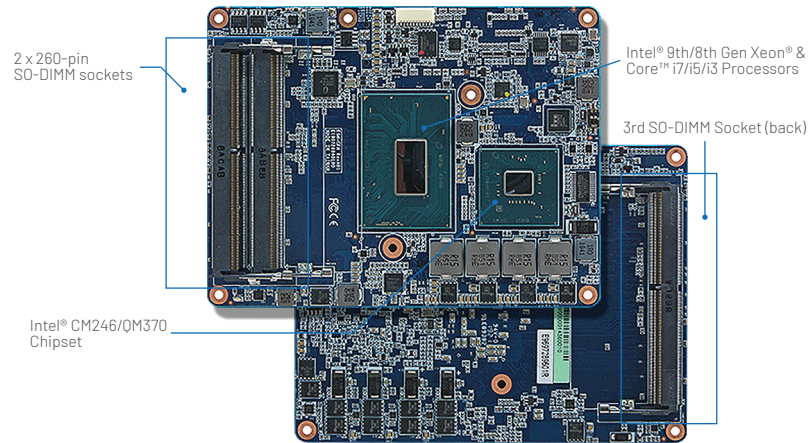


Features

- PICMG COM R3.0 Type 6 module with 9th/8th Generation Intel® Xeon®/Core™ i7 / i5 / i3 Processors
- Up to 3 x 260-pin DDR4 non-ECC/ECC 2400/2133 SODIMM with up to 96 GB
- Dual-channel 18/24-bit LVDS, VGA, DP++/HDMI/DVI, optional eDP
- Flexible I/O support with 4 x USB3.2 Gen.2, 8 x USB 2.0, Gen3 PEG x16, 8 x PCIe x1 & 4 x SATA III
- Intel® I219LM Gigabit Ethernet PHY
- 9V~19V Wide Range Voltage Input
- TPM 2.0
- AMT 12.0 support



Specifications

System	
CPU	Mobile 9th Generation Intel® Xeon®, Core™, Pentium® and Celeron® Processors - 14nm process Intel® Xeon® E-2276ME 45W (35W cTDP), 6-Core(ECC/non-ECC) Intel® Core™ i7-9850HE 45W (35W cTDP), 6-Core (non-ECC) Intel® Core™ i5-8400H 45W (35W cTDP), 4-Core (non-ECC) Intel® Core™ i3-9100HL 25W, 4-Core (ECC/non-ECC) Note: CPU coolers are not included. Please see Ordering Info for more details.
Chipset	CM246 (supports ECC memory, Intel® AMT and PEG configuration) QM370 (supports Intel® AMT and PEG configuration)
System Memory	Supports up to 3 x 260-pin DDR4-2400/2133 SODIMM with up to 96GB Note: ECC supported only on specific models with Xeon & Core i3 CPU paired with CM246 Chipset Supports both ECC and non-ECC memory
Audio	Intel® HD Audio
Ethernet	Intel® Gigabit Ethernet Controller I219-LM
BIOS	AMI uEFI BIOS, 128 Mbit SPI Flash ROM iAMT 12.0 supported (only on specific models with Xeon/i7/i5 SKU)
I/O Chip	Nuvoton NCT6106D
Watchdog Timer	H/W Reset, 1sec. ~ 65535sec.
H/W Status Monitor	Monitoring System Temperature and Voltage with Auto Throttling Control
Expansion	1 x PCIe x16 Gen 3 (configurable to 1 x PCIe x16, 2 PxCle x8, or 1 PxCle x8 + 2 x PCIe x4) 8 x PCIe x1, configurable to x4 or x2 * 6 x PCIe x1 (PCIe 0-3 w/RST, PCIe 4,5) * 2 x PCIe x1 (PCIe 6, PCIe7)
TPM	TPM 2.0
Supported OS	Microsoft® Windows 10 64-bit, Linux

Display	
Chipset	Intel® Coffee Lake Processor Integrated Graphics
Resolution	eDP 1.4 (optional): 4096x2304 @60Hz (only one display output) HDMI 1.4: 4096x2160 @30Hz (only one display output) DP 1.2 (supports DP++): 4096x2304 @60Hz (only one display output) LVDS (via eDP-to-LVDS IC): 1920x1080 @60Hz VGA (via DP-to-VGA IC): 1920x1080 @60Hz
LVDS	Dual-channel 18/24-bit LVDS (LVDS via CH7511B)
Multi-Display	Supporting 3 independent and simultaneous display LVDS (eDP)+ VGA (HDMI)+ DDI (HDMI or DP)
I/O	
Display	HDMI 1.4
USB	4 x USB 3.2 Gen. 2 (10 Gbps) / USB 3.2 Gen.1 8 x USB 2.0 (EHCI)
GPIO	8-bit GPIO (Share with SDIO, Optional), WDG/HW monitor/FAN
Other	4 x SATAIII 6.0Gb/s (Support RAID0,1,5,10) LPC, I2C, SPI, SMBus, 2 x UART(2-wire), SDIO (optional)

Mechanical & Environment

Power Type	+9- +19V
ACPI	Single power ATX Support S0, S3, S4, S5 ACPI 4.0 Compliant
Operating Temp	0 ~ 60 °C (32 ~ 140 °F)
Storage Temp	-40°C ~ 75°C (-40°F ~ 167°F)
Operating Humidity	40°C @ 95% Relative Humidity, Non-condensing
Storage Humidity	5% ~ 90% Relative Humidity, Non-condensing
Form Factor	COM Express Modules
Dimensions	3.74" x 4.92" (125 x 95 mm)
Weight	0.44 lbs (0.2kg)

Ordering Info

ESM-CFH-2276ME	Intel® CM246 Xeon E-2276ME 2.8GHz 6 Cores, 3 x DDR4 SoDIMM, ECC, eDP/LVDS, VGA, DP/HDMI, 1x Gbit LAN, 1x PCIe16, 8 x PCIe1, 4 x SATA III, 4 x USB 3.2, 8 x USB 2.0, RAID, GPIO, Type 6
ESM-CFH-9850HE	Intel® QM370 Core i7-9850HE 2.7GHz 6 Cores, 3 x DDR4 SoDIMM, eDP/LVDS, VGA, DP/HDMI, 1x Gbit LAN, 1x PCIe16, 8 x PCIe1, 4 x SATA III, 4 x USB 3.2, 8 x USB 2.0, RAID, GPIO, Type 6
ESM-CFH-8400H	Intel® QM370 Core i5-8400H 2.4GHz Quad Cores, 3 x DDR4 SoDIMM, eDP/LVDS, VGA, DP/HDMI, 1x Gbit LAN, 1x PCIe16, 8 x PCIe1, 4 x SATA III, 4 x USB 3.2, 8 x USB 2.0, RAID, GPIO, Type 6
ESM-CFH-9100HL	Intel® QM370 Core i3-9100HL 1.6GHz Quad Cores, 3 x DDR4 SoDIMM, eDP/LVDS, VGA, DP/HDMI, 1x Gbit LAN, 1x PCIe16, 8 x PCIe1, 4 x SATA III, 4 x USB 3.2, 8 x USB 2.0, RAID, GPIO, Type 6
ACC-ESMCFH-CL-1R	Cooler for ESM-CFH W/FAN H=44.6m
ACC-ESMCFH-SD-1R	Heatspreader for ESM-CFH H=8.0m

* All product specifications and images are subject to change without notice. Last update: 02/08/2018



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