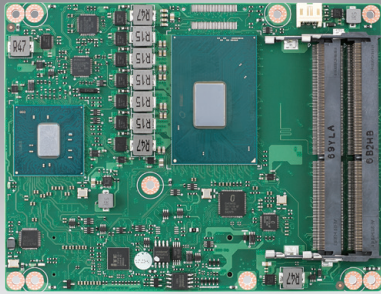


SOM-5898

7th Gen Intel® Xeon® /Core™ Processors COM Express Basic Module Type 6



Features

- 7th Gen Intel Xeon® /Core™ Quad/Dual Cores + PCH QM175/CM238
- Dual channel DDR4 2400, Max 32GB (ECC optional)
- Support Three independent symmetrical displays (up to 4K)
- Flexible I/O support: Gen3 PEG and PCIe, USB3.0 and SATA3
- Supports iManager, WISE-PaaS/RMM and Embedded Software APIs

Software APIs:

- Watchdog
- I²C
- SMBus
- HW Monitor
- GPIO
- Brightness

Utilities:

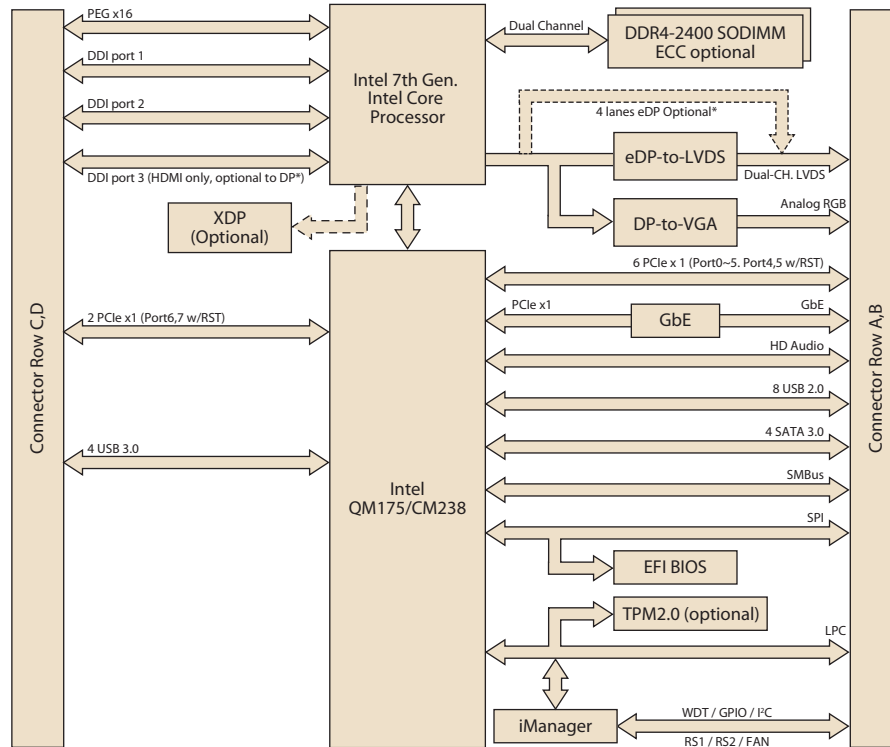
- BIOS flash
- Monitoring
- Embedded Security ID



Specifications

| | | | | | | | | |
|------------------|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|----------|----------|------------|------------|
| Compliance | Form-Factor | COM Express Basic Module | | | | | | |
| | Pin-out Type | COM Express R2.1 Type 6 pin out | | | | | | |
| Processor System | CPU | i7-7820EQ | i5-7440EQ | i5-7442EQ | i3-7100E | i3-7102E | E3-1505MV6 | E3-1505LV6 |
| | Base Frequency | 3.0 GHz | 2.9 GHz | 2.1 GHz | 2.9 GHz | 2.1 GHz | 3.0 GHz | 2.2 GHz |
| | Max Single Core Turbo Frequency | 3.7 GHz | 3.6 GHz | 2.9 GHz | - | - | 4.0 GHz | 3.0 GHz |
| | Cores | 4 | 4 | 4 | 2 | 2 | 4 | 4 |
| | Cache | 8 MB | 6 MB | 6 MB | 3 MB | 3 MB | 8 MB | 8 MB |
| | CPU TDP | 45W | 45W | 25W | 35W | 25W | 45W | 25W |
| | BIOS | AMI UEFI 128Mbit | | | | | | |
| Memory | Technology | DDR4 up to 2400MHz | | | | | | |
| | ECC Support | ECC is supported with specific SKU | | | | | | |
| | Max. Capacity | Up to 32GB | | | | | | |
| | Socket | Dual Channel 260P SO-DIMM (1 DIMM per Channel) | | | | | | |
| Graphics | Controller | Intel Gen 9 low power graphics | | | | | | |
| | Base/Turbo Freq. | 350MHz/1GHz | | | | | | |
| | Graphics Memory | Intel DMV5.0, share memory up to 1024MB | | | | | | |
| | 3D/HW Acceleration | HW Codec: H.265/HEVC 8bit/10bit encode/decode ; VP8 8bit encode/decode, VP9 10bit decode ; MPEG2 ; JPEG ; VC1/WMV9. Direct3D 2015/11.2/11.1/10/9 ; OpenGL5.0 ; OpenCL 2.0/1.2/1.0 | | | | | | |
| Display | VGA | 1 port up to 1920 x 1200 @ 60 Hz | | | | | | |
| | LCD | LVDS Dual Channel 18/24-bit, up to 1920 x 1200 @ 60Hz | | | | | | |
| | DDI | 2 Port configurable to HDMI1.4/DVI/Displayport1.2 HDMI up to 4096 x 2160@30/24Hz, DVI up to 1920 x 1200@60Hz, DP up to 4096 x 2304 @ 60Hz | | | | | | |
| | Multiple Display | Dual display, Triple display with each display combinations | | | | | | |
| Expansion | PCI Express x16 (Gen3) | 1 PCIe x16 configurable to 1 x16, 2 x8, 1 x8 + 2 x4 | | | | | | |
| | PCI Express x1 (Gen3) | 8 PCIe x1, configurable to x4 or x2 | | | | | | |
| | Audio Interface | Intel HD Audio Interface | | | | | | |
| | LPC | Yes | | | | | | |
| Serial Bus | SMBus | Yes | | | | | | |
| | I²C Bus | Yes | | | | | | |
| Ethernet | Controller | Intel I219 | | | | | | |
| | Speed | 10/100/1000 Mbps | | | | | | |
| I/O | SATA (Gen 3) | 4 Ports (6Gbps) | | | | | | |
| | USB3.0 | 4 Ports (5Gbps) | | | | | | |
| | USB2.0 | 8 Ports (480Mbps) | | | | | | |
| | SPI Bus | Yes | | | | | | |
| | GPIO | 8-bit | | | | | | |
| | Watchdog | 65536 level, 0~65535 sec | | | | | | |
| | COM Port | 2 Ports (2-wire) | | | | | | |
| | Express Card | 2 Ports | | | | | | |
| | TPM | TPM2.0 (Infineon SLB9665)(optional) | | | | | | |
| | Smart Fan | 2 Ports: 1 port on module (Notice: the input voltage of fan is aligned to Vin); 1 port on carrier board | | | | | | |
| Power | Type | ATX: Vin, VSB; AT: Vin | | | | | | |
| | Supply Voltage | Vin: 8.5V ~ 20V; VSB: 4.75V ~ 5.25 V, RTC Battery: 2.0V ~ 3.3V | | | | | | |
| | Power Consumption | Max: 12V @ 48.1W, i7-7820EQ Idle: 12V @ 6.77W, i7-7820EQ *Only for reference and will depends on custom software loading, detail refer to user manual | | | | | | |
| Environment | Operating Temperature | Standard: 0 ~ 60 °C (32 ~ 140 °F), Extend: -40 ~ 85 °C (-40 ~ 185 °F) | | | | | | |
| | Storage Temperature | -40 ~ 85 °C (-40 ~ 185 °F) | | | | | | |
| | Humidity | Operating: 40 °C @ 95% relative humidity, non-condensing Storage: 60 °C @ 95%relative humidity, non-condensing | | | | | | |
| | Vibration Resistance | 3.5 Grms | | | | | | |
| Mechanical | Dimensions | 125 mm x 95 mm (4.92" x 3.74") | | | | | | |

Block Diagram



***Display Configuration Table**

| Default | DDI1 (DP++) | DDI2 (DP++) | DDI3 (HDMI only) | LVDS | VGA |
|----------|-------------|-------------|------------------|---------------|-----|
| Optional | DDI1 (DP++) | DDI2 (DP++) | DDI3 (DP++) | eDP (4 lanes) | |

Ordering Information

| Part No. | CPU | Freq. | Cores | CPU TDP | PCH | DDR4 Memory | Thermal Solution | Operating Temperature |
|-------------------|------------|-------|-------|---------|-------|--------------|------------------|-----------------------|
| SOM-5898C7-H0A2 | i7-7820EQ | 3.0 | 4 | 45W | QM175 | non-ECC | Active | 0 ~ 60 °C |
| SOM-5898C5-U9A2 | i5-7440EQ | 2.9 | 4 | 45W | QM175 | non-ECC | Active | 0 ~ 60 °C |
| SOM-5898C3-U9A2 | i3-7100E | 2.9 | 2 | 35W | QM175 | non-ECC | Active | 0 ~ 60 °C |
| SOM-5898E4M-H0A2 | E3-1505MV6 | 3.0 | 4 | 45W | CM238 | ECC/ non-ECC | Active | 0 ~ 60 °C |
| SOM-5898C5X-U9A2 | i5-7440EQ | 2.9 | 4 | 45W | QM175 | non-ECC | Active | -40 ~ 85 °C |
| SOM-5898C5X-U1A2 | i5-7442EQ | 2.1 | 4 | 25W | QM175 | non-ECC | Active | -40 ~ 85 °C |
| SOM-5898C3X-U1A2 | i3-7102E | 2.1 | 2 | 25W | QM175 | non-ECC | Active | -40 ~ 85 °C |
| SOM-5898E4MX-H0A2 | E3-1505MV6 | 3.0 | 4 | 45W | CM238 | ECC/ non-ECC | Active | -40 ~ 85 °C |
| SOM-5898E4LX-U2A2 | E3-1505LV6 | 2.2 | 4 | 25W | CM238 | ECC/ non-ECC | Active | -40 ~ 85 °C |

Any other SKU or combination is project based support. Please contact sales for details.

Development Board

| Part No. | Description |
|------------------|------------------------------------------|
| SOM-DB5800-00A2E | COMe Devel. Board Type6 pint-out Rev. A2 |

Optional Accessories

| Part No. | Description |
|----------------|-------------------------------------------|
| 1960048820N001 | Semi-Cooler 125 x 95 x 33 mm with 12V FAN |
| 1960094209T001 | QFCS 125 x 95 x 26.29 mm |

* Test conditions follow Advantech regulations and procedures.
* QFCS: Quadro Flow Cooling System

Packing List

| Part No. | Description | Quantity |
|----------------|---------------------|----------|
| - | SOM-5898 CPU module | 1 |
| 1960081253T001 | Heatspreader | 1 |

Embedded OS

| OS | Part No. | Description |
|------------|------------|------------------------------------------------|
| Win10 (HL) | 2070015300 | Img Win10 IoT Ent_LTSB 64 bit (Xeon & Core i7) |
| Win10 (VL) | 2070015301 | Img Win10 IoT Ent_LTSB 64 bit (Core i5 & i3) |

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