

Qseven™ Modules

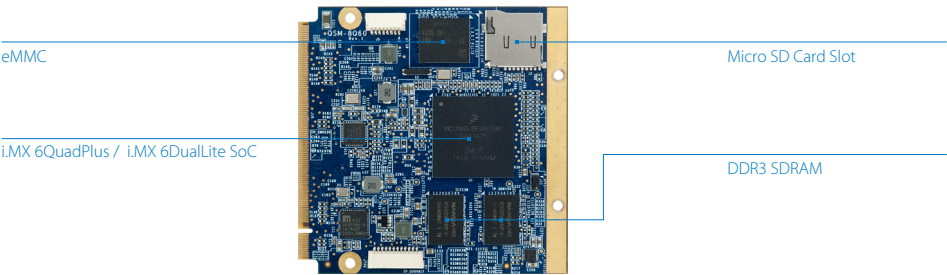
VIA  
QSM-8Q60

Qseven™ ARM module with NXP i.MX 6QuadPlus or i.MX 6DualLite Cortex-A9 SoC for industrial automation applications

Features

- 1.0GHz NXP i.MX 6QuadPlus or i.MX 6DualLite Cortex-A9 SoC
- Qseven™ Rev. 2.0 compliant
- Wide operating temperature range: -20°C ~ 70°C
- 3.5" form factor carrier options
- 7-year longevity support

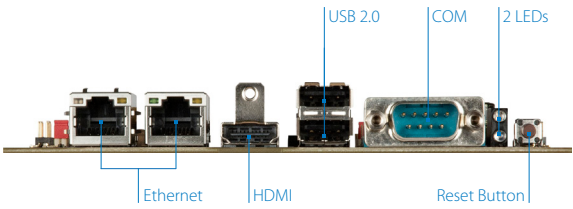
Board Placement



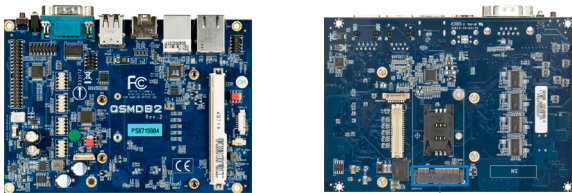
Specifications

| Model Name              | QSM-8Q60-QP                                                                                                                                                                                                                                              | QSM-8Q60                                                                                                                                                                                          |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Processor               | 1.0GHz NXP i.MX 6QuadPlus Cortex-A9 quad-core SoC                                                                                                                                                                                                        | 1.0GHz NXP i.MX 6DualLite Cortex-A9 dual-core SoC                                                                                                                                                 |
| System Memory           | 2GB DDR3 SDRAM                                                                                                                                                                                                                                           |                                                                                                                                                                                                   |
| Storage                 | 4GB eMMC Flash memory                                                                                                                                                                                                                                    |                                                                                                                                                                                                   |
| Boot Loader             | 4MB SPI Flash ROM                                                                                                                                                                                                                                        |                                                                                                                                                                                                   |
| Graphics                | Vivante GC2000+ GPU<br>3 integrated, independent 3D/2D and video graphics processing units<br>Supports OpenGL® ES 2.0, OpenCL and OpenVG™ 1.1 hardware acceleration<br>Supports MPEG-2, VC1 and H.264 video decoding up to 1080p<br>Supports SD encoding | Vivante GC880 GPU<br>2 Independent, integrated 3D/2D and graphics processing units<br>Supports OpenGL®ES 2.0, OpenVG 1.1 hardware acceleration<br>Supports MPEG-2, VC1 video decoding up to 1080p |
| LAN                     | Micrel KSZ9031RNX Gigabit Ethernet Transceiver with RGMII support                                                                                                                                                                                        |                                                                                                                                                                                                   |
| Audio                   | I2S Audio Interface                                                                                                                                                                                                                                      |                                                                                                                                                                                                   |
| HDMI                    | Integrated HDMI 1.4 Transmitter                                                                                                                                                                                                                          |                                                                                                                                                                                                   |
| USB                     | SMSC USB2514 USB 2.0 High Speed 4-port hub controller                                                                                                                                                                                                    |                                                                                                                                                                                                   |
| Supported Expansion I/O | 1 PCIe x1                                                                                                                                                                                                                                                |                                                                                                                                                                                                   |
| Supported I/O           | 1 HDMI port<br>1 Dual-channel 18/24-bit LVDS panel connector<br>4 USB 2.0 ports<br>1 USB OTG client<br>3 COM (TX/RX) ports<br>2 CAN bus<br>1 Gigabit Ethernet port<br>3 I²C<br>1 I2S<br>1 SPI<br>1 SDIO<br>1 PWM                                         |                                                                                                                                                                                                   |
| Onboard I/O             | 1 Micro SD card slot                                                                                                                                                                                                                                     |                                                                                                                                                                                                   |
| Operating System        | Linux Kernel 4.1.15                                                                                                                                                                                                                                      |                                                                                                                                                                                                   |
| Operating Temperature   | -20°C ~ 70°C                                                                                                                                                                                                                                             |                                                                                                                                                                                                   |
| Operating Humidity      | 0% ~ 95% (non-condensing)                                                                                                                                                                                                                                |                                                                                                                                                                                                   |
| Form Factor             | 7.0cm x 7.0cm (2.76" x 2.76")                                                                                                                                                                                                                            |                                                                                                                                                                                                   |
| Compliance              | Qseven™ Rev. 2.0 module                                                                                                                                                                                                                                  |                                                                                                                                                                                                   |

### Carrier Board Front Panel I/O



### Carrier Board (QSMDB2)



EMIO-2550 3G HSPA/UMTS  
Mobile Broadband Module



EMIO-2531 miniPCIe Wi-Fi + BT Module  
802.11b/g/n standards  
Bluetooth 2.1 + EDR specification

### Specifications

\* The carrier board is only for evaluation purposes.

|                       |                                                                                                                                                                                                                                                                                                                                                                                                                              |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Model Name            | QSMDB2                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Audio                 | NXP SGTL5000 low power stereo codec                                                                                                                                                                                                                                                                                                                                                                                          |
| Onboard I/O           | 1 Dual-channel 18/24-bit LVDS panel connector<br>1 LVDS inverter connector<br>1 Touch panel connector<br>4 COM port pin headers (RS-232/422/485)<br>1 GPIO (16 GPI +16 GPO) pin header<br>1 CAN bus connector (supports 2 CAN bus)<br>1 I <sup>2</sup> C and Serial port pin header (supports 2 RS-232 TX/RX)<br>1 Audio pin header for Line-in, Line-out, Mic-in<br>1 SIM card slot<br>1 miniPCIe slot<br>1 DC-in connector |
| Front Panel I/O       | 1 HDMI port<br>2 USB 2.0 ports<br>1 COM port (TX/RX for debug)<br>1 Gigabit Ethernet port<br>1 10/100Mbps Ethernet port<br>2 LEDs for power & Wi-Fi status<br>1 Reset Button                                                                                                                                                                                                                                                 |
| Power Supply          | 15~24V DC-in                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operating Temperature | -20°C ~ 70°C                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Operating Humidity    | 0% ~ 95% (non-condensing)                                                                                                                                                                                                                                                                                                                                                                                                    |
| Form Factor           | 3.5" Form Factor 14.6cm x 10.2cm (5.75" x 4.01")                                                                                                                                                                                                                                                                                                                                                                             |

### Ordering Information

| Model Name    | SoC Frequency                                       | Description                                                                                                                                                                                                                           |
|---------------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10GEC10H40020 | NXP i.MX 6QuadPlus Cortex-A9 quad-core SoC @ 1.0GHz | Qseven™ module with 1.0GHz NXP i.MX 6QuadPlus Cortex-A9, 4GB eMMC, 4MB SPI ROM, 2GB DDR3 SDRAM, HDMI, 4 USB 2.0, 1 USB OTG client, LVDS, 3 COM (TX/RX), 2 CAN bus, Gigabit Ethernet, 10/100Mbps Ethernet, PCIe x1, Micro SD card slot |
| 10GEC10700020 | NXP i.MX 6DualLite Cortex-A9 dual-core SoC @ 1.0GHz | Qseven™ module with 1.0GHz NXP i.MX 6DualLite Cortex-A9, 4GB eMMC, 4MB SPI ROM, 2GB DDR3 SDRAM, HDMI, 4 USB 2.0, 1 USB OTG client, LVDS, 3 COM (TX/RX), 2 CAN bus, Gigabit Ethernet, 10/100Mbps Ethernet, PCIe x1, Micro SD card slot |
| 10GFL00000020 | N/A                                                 | QSM-8Q60 evaluation carrier board (QSMDB2) with CAN bus cable and DC power cable                                                                                                                                                      |

### Optional Accessories

| Wireless Accessories |                                                                                                              |
|----------------------|--------------------------------------------------------------------------------------------------------------|
| Part Number          | Description                                                                                                  |
| 00GO27100BU2B0D0     | VNT9271BU0DB IEEE 802.11 b/g/n USB Wi-Fi dongle                                                              |
| EMIO-2531-00A1       | VAB-820-W-M IEEE 802.11 b/g/n miniPCIe Wi-Fi & Bluetooth module with assembly kit and antenna                |
| EMIO-2550-00A1       | 3.75G HSPA/UMTS mobile broadband full size miniPCIe module with GPS, SIM card slot, assembly kit and antenna |

Block Diagram

