



Qseven[®] conga-MCB/Qseven ARM

Short description of the congatec Qseven[®] ARM mini carrier board

Short Description

Revision 1.0

Revision History

| Revision | Date (yyyy.mm.dd) | Author | Changes |
|----------|-------------------|--------|--|
| 1.0 | 2014.05.23 | AEM | <ul style="list-style-type: none">• Official release |

Preface

This short description provides information about the components, features and connectors available on the conga-MCB/Qseven ARM mini carrier board.

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Symbols

The following symbols are used in this short description:



Warning

Warnings indicate conditions that, if not observed, can cause personal injury.



Caution

Cautions warn the user about how to prevent damage to hardware or loss of data.



Note

Notes call attention to important information that should be observed.



Connector Type

Describes the connector that must be used with the Qseven® mini carrier board, not the connector found on the Qseven® mini carrier board.



Link to connector layout diagram

This link icon is located in the top left corner of each page. It provides a direct link to the connector layout diagram on page 8 of this document.

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Terminology

| Term | Description |
|-----------------------|--|
| PCI Express (PCIe) | Peripheral Component Interface Express – next-generation high speed Serialized I/O bus |
| PCI Express Lane | One PCI Express Lane is a set of 4 signals that contains two differential lines for Transmitter and two differential lines for Receiver. Clocking information is embedded into the data stream. |
| x1, x2, x4, x16 | x1 refers to one PCI Express Lane of basic bandwidth; x2 to a collection of two PCI Express Lanes; etc.. Also referred to as x1, x2, x4 or x16 link. |
| PCI Express Mini Card | PCI Express Mini Card add-in card is a small size unique form factor optimized for mobile computing platforms. |
| MMCplus | MMCplus was defined for first time in MMC System Specification v4.0. MMCplus is backward compatible with MMC. MMCplus has 13 pins. |
| SDIO card | SDIO (Secure Digital Input Output) is a non-volatile memory card format developed for use in portable devices. |
| USB | Universal Serial Bus |
| SATA | Serial AT Attachment: serial-interface standard for hard disks |
| HDA | High Definition Audio |
| S/PDIF | S/PDIF (Sony/Philips Digital Interconnect Format) specifies a Data Link Layer protocol and choice of Physical Layer specifications for carrying digital audio signals between devices and stereo components. |
| HDMI | High Definition Multimedia Interface. HDMI supports standard, enhanced, or high-definition video, plus multi-channel digital audio on a single cable. |
| TMDS | Transition Minimized Differential Signaling. TMDS is a signaling interface defined by Silicon Image that is used for DVI and HDMI. |
| DVI | Digital Visual Interface is a video interface standard developed by the Digital Display Working Group (DDWG). |
| LPC | Low Pin-Count: a low speed interface used for peripheral circuits such as Super I/O controllers, which typically combine legacy device support into a single IC. |
| I ² C Bus | Inter-Integrated Circuit Bus: is a simple two-wire bus with a software-defined protocol that was developed to provide the communications link between integrated circuits in a system. |
| SM Bus | System Management Bus: is a popular derivative of the I ² C-bus. |
| CAN | Controller Area Network |
| SPI | Serial Peripheral Interface |
| GBE | Gigabit Ethernet |
| LVDS | Low-Voltage Differential Signaling |
| DDC | Display Data Channel is an I ² C bus interface between a display and a graphics adapter. |
| N.C. | Not connected |
| N.A. | Not available |
| T.B.D. | To be determined |

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1 Introduction

1.1 Qseven® 2.0 Concept

The Qseven® concept is an off-the-shelf, multi vendor, Computer-on-Module that integrates all the core components of a common PC and is mounted onto an application specific carrier board. Qseven® modules have a standardized form factor of 70mm x 70mm and a specified pinout based on the high speed MXM system connector and the pinout remains the same regardless of the vendor. The Qseven® module provides the functional requirements for an embedded application. These functions include, but are not limited to, graphics, sound, mass storage, network interface and multiple USB ports.

A single ruggedized MXM connector provides the carrier board interface to carry all the I/O signals to and from the Qseven® module. This MXM connector is a well known and proven high speed signal interface connector that is commonly used for high speed PCI Express graphics cards in notebooks.

Carrier board designers can utilize as little or as many of the I/O interfaces as deemed necessary. The carrier board can therefore provide all the interface connectors required to attach the system to the application specific peripherals. This versatility allows the designer to create a dense and optimized package, which results in a more reliable product while simplifying system integration.

The Qseven® evaluation carrier board provides carrier board designers with a reference design platform and the opportunity to test all the Qseven® I/O interfaces available and then choose what are suitable for their application. Qseven® applications are scalable, which means once a carrier board has been created there is the ability to diversify the product range through the use of different performance class Qseven® modules. Simply unplug one module and replace it with another, no need to redesign the carrier board.

This document describes the features available on the Qseven® evaluation carrier board. Additionally, the schematics for the Qseven® evaluation carrier board can be found on the congatec website.

1.2 conga-MCB/Qseven ARM

The conga-MCB/Qseven ARM is a Qseven® mini carrier board that is designed based on Qseven specification revision 2.0. It has an industrial 5-pin power connector with an input voltage range of 12-24V and nominal voltage of 19V, as well as 5V STB. It can therefore be used as a stand-alone carrier board for Qseven® modules.

You can also directly integrate the conga-MCB/Qseven ARM into an application or use it with a Qseven module as a small evaluation platform for your battery supported application.

The features are summarized in the table below:

1.2.1 Feature List

| | | |
|-----------------------------|--|---|
| Form Factor | Based on Qseven® form factor specification revision 2.0 | |
| Input Power Supplies | 5-pin power connector DC-IN power jack for notebook-type power supply 8-pin connector for conga-SBM3 battery module | |
| Power Mode | ATX/AT | |
| Input Voltages | 12-24V, nominal 19V. | |
| Interfaces | USB <ul style="list-style-type: none"> • 3x USB 2.0 • 1x USB OTG Gigabit Ethernet connector with LEDs on front panel 2x CAN <ul style="list-style-type: none"> • 1x CAN connector onboard • 1x optional CAN interface (not assembled by default) HDMI LVDS - Single/dual 18/24bits LVDS 2x UART | Audio <ul style="list-style-type: none"> • 4-way audio Jack • Auxiliary audio header (not assembled by default) GPIOs MIPI CSI-2 Camera FAN Mini-PCIe Card Socket Sim card slot SD card slot |
| Additional Features | Android Buttons: Power, sleep, back, search, home, volume up, volume down | |
| Additional Features | Android Buttons: Power, sleep, back, search, home, volume up, volume down, menu, LID and reset CAN terminal Fan Voltage Selector (5V or 12V) LED indicators Backlight voltage selector Alternative Boot CMOS battery | |

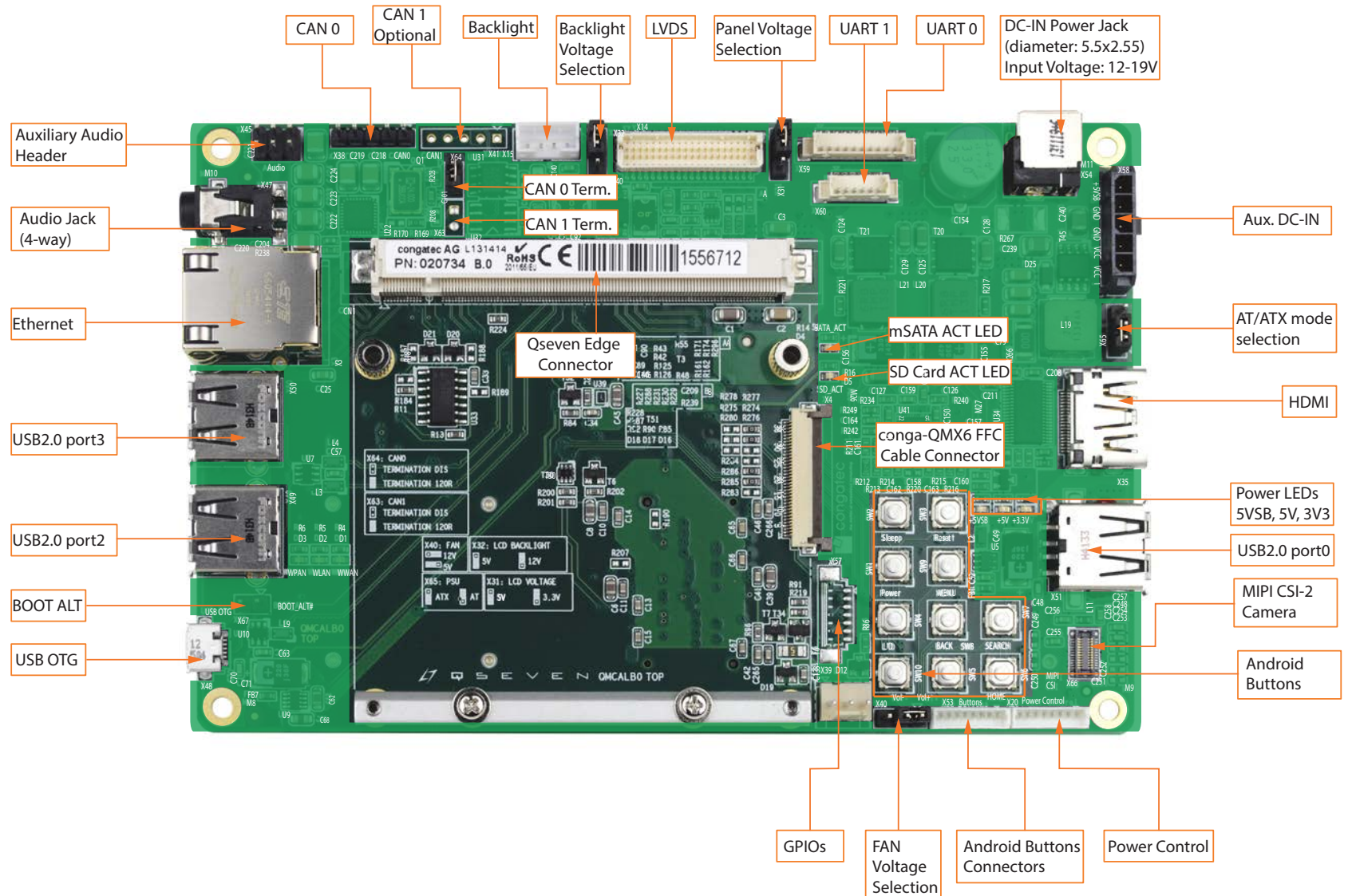

Note

Information about the cables required to operate the conga-MCB/Qseven ARM mini carrier board can be found in section 6 “Cables” of this document.



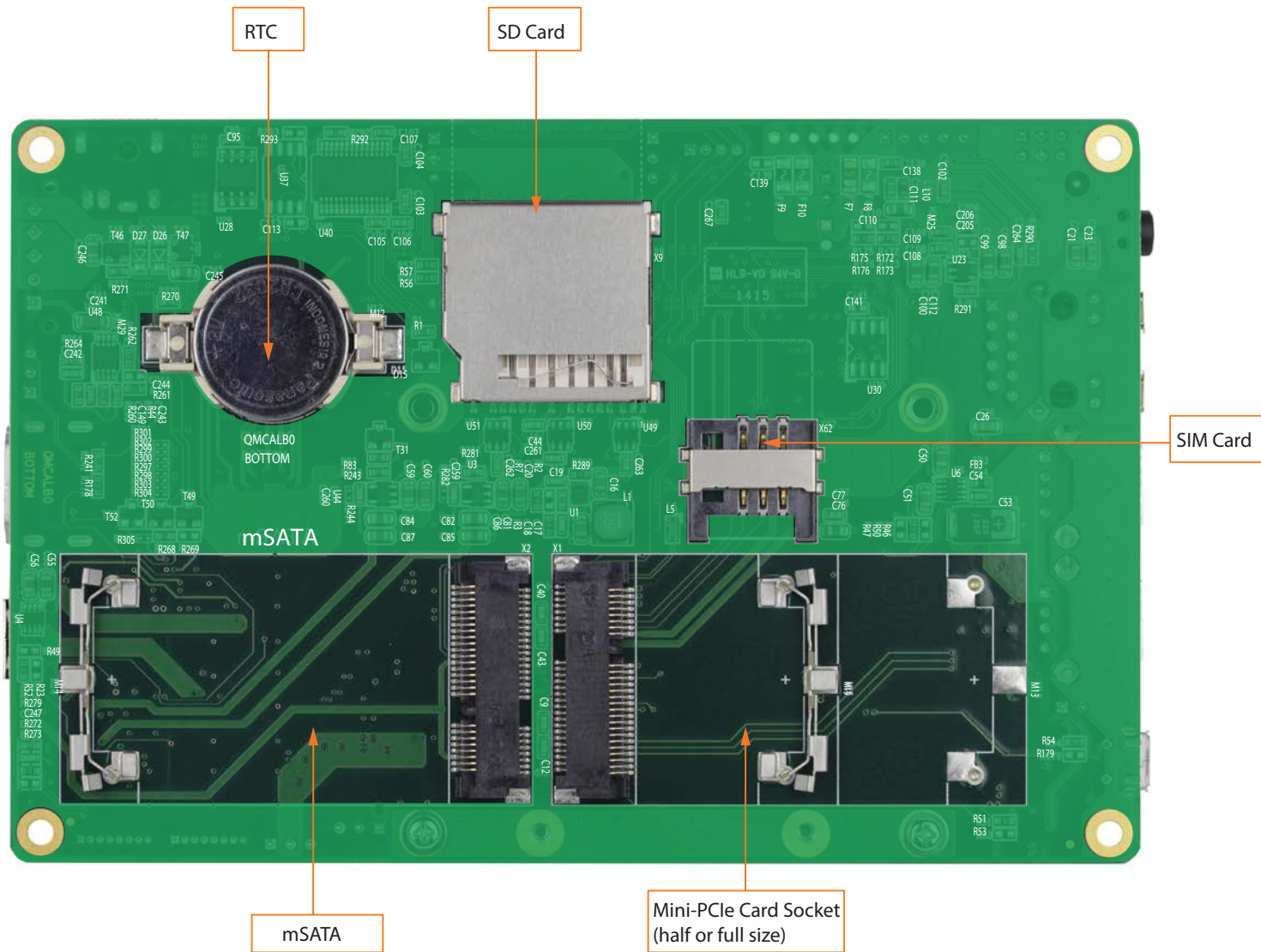
2 Connector Layout

The connector layout picture below shows each connector and its name designator. Jumpers and their respective pins are also shown. Select the Adobe 'Zoom-In-Tool' and zoom in on a given component to see its designator. Hover over the component and the 'Zoom-In-Tool' will change, indicating there is a link. Click on the link to navigate to the area in the document where the component is described. Use the mouse icon in the top left hand corner of the destination page to return to the connector layout pictures.





Bottom Side conga-MCB/Qseven ARM





3 Specifications

3.1 Mechanical Dimensions

- 95mm x 145mm
- Height approximately 15mm (top side)
- Height approximately 6mm (bottom side)

3.2 Environmental Specifications

| | | |
|-------------|-----------------------|------------------------|
| Temperature | Operation: 0° to 60°C | Storage: -20° to +80°C |
| Humidity | Operation: 10% to 90% | Storage: 5% to 95% |



Note

The above operating temperatures must be strictly adhered to at all times. The maximum operating temperature refers to any measurable spot on the modules surface.

Humidity specifications are for non-condensing conditions.



4 Connector Descriptions

The following tables describe the pin assignments for the connectors found on the conga-MCB/Qseven ARM.

4.1 Connector CN1 Pinout

| Pin | Signal | Description | Pin | Signal | Description |
|------------|-----------------------------|--|-----|---------------|-------------------------------------|
| 1 | GND | Power Ground | 2 | GND | Power Ground |
| 3 | GBE_MDI3- | Gigabit Ethernet MDI3- | 4 | GBE_MDI2- | Gigabit Ethernet MDI2- |
| 5 | GBE_MDI3+ | Gigabit Ethernet MDI3+ | 6 | GBE_MDI2+ | Gigabit Ethernet MDI2+ |
| 7 | GBE_LINK100# | 100 Mbps link speed | 8 | GBE_LINK1000# | 1000 Mbps link speed |
| 9 | GBE_MDI1- | Gigabit Ethernet MDI1- | 10 | GBE_MDI0- | Gigabit Ethernet MDI0- |
| 11 | GBE_MDI1+ | Gigabit Ethernet MDI1+ | 12 | GBE_MDI0+ | Gigabit Ethernet MDI0+ |
| 13 | GBE_LINK# | Gigabit Ethernet Link indicator | 14 | GBE_ACT# | Gigabit Ethernet Activity indicator |
| 15 | GBE_CTREF | Reference voltage for GBE | 16 | SUS_S5# | S5 (Soft OFF) – shutdown state |
| 17 | WAKE# | External system wake event | 18 | SUS_S3# | S3 (Suspend to RAM) – SLP |
| 19 | SUS_STAT# | Suspend status | 20 | PWRBTN# | Power button |
| 21 | SLP_BTN# | Sleep button | 22 | LID_BTN# | LID button |
| 23 | GND | Power Ground | 24 | GND | Power Ground |
| Key | | | | | |
| 25 | GND | Power Ground | 26 | PWGIN | Power good input |
| 27 | BATLOW# | Battery low input | 28 | RSTBTN# | Reset button input |
| 29 | SATA0_TX+ | Serial ATA Channel 0 TX+ | 30 | SATA1_TX+ | Serial ATA Channel 1 TX+ |
| 31 | SATA0_TX- | Serial ATA Channel 0 TX- | 32 | SATA1_TX- | Serial ATA Channel 1 TX- |
| 33 | SATA_ACT# | Serial ATA Activity | 34 | GND | Power Ground |
| 35 | SATA0_RX+ | Serial ATA Channel 0 RX+ | 36 | SATA1_RX+ | Serial ATA Channel 1 RX+ |
| 37 | SATA0_RX- | Serial ATA Channel 0 RX- | 38 | SATA1_RX- | Serial ATA Channel 1 RX- |
| 39 | GND | Power Ground | 40 | GND | Power Ground |
| 41 | BIOS_DISABLE# /BOOT_ALT# | BIOS Module disable Boot Alternative Enable | 42 | SDIO_CLK | SDIO Clock Output |
| 43 | SDIO_CD# | SDIO Card Detect | 44 | SDIO_LED | SDIO LED |
| 45 | SDIO_CMD | SDIO Command/Response | 46 | SDIO_WP | SDIO Write Protect |
| 47 | SDIO_PWR# | SDIO Power Enable | 48 | SDIO_DAT1 | SDIO Data Line 1 |
| 49 | SDIO_DAT0 | SDIO Data Line 0 | 50 | SDIO_DAT3 | SDIO Data Line 3 |
| 51 | SDIO_DAT2 | SDIO Data Line 2 | 52 | SDIO_DAT5 | SDIO Data Line 5 |
| 53 | SDIO_DAT4 | SDIO Data Line 4 | 54 | SDIO_DAT7 | SDIO Data Line 7 |
| 55 | SDIO_DAT6 | SDIO Data Line 6 | 56 | RSVD | Reserved |
| 57 | GND | Power Ground | 58 | GND | Power Ground |



| Pin | Signal | Description | Pin | Signal | Description |
|-----|---------------------------------------|--|-----|--------------------------|--|
| 59 | HDA_SYNC / AC97_SYNC / I2S_WS | Serial Bus Synchronization. Serial Bus Synchronization Multiplexed with I2S Word Select | 60 | SMB_CLK / GP1_I2C_CLK | SMBus Clock line. Multiplexed with General Purpose I ² C bus #1 clock line |
| 61 | HDA_RST# / AC97_RST# / I2S_RST# | HD Audio Codec Rest AC'97 Codec Reset. Multiplexed with I2S Codec Reset | 62 | SMB_DAT / GP1_I2C_DAT | SMBus Data line. Multiplexed with General Purpose I ² C bus #1 data line. |
| 63 | HDA_BCLK / AC97_BCLK / I2S_CLK | HD Audio Serial Bit Clock AC'97 Serial Bit Clock. Multiplexed with I2S Serial Data Clock | 64 | SMB_ALERT# | SMBus Alert input |
| 65 | HDA_SDI / AC97_SDI / I2S_SDI | HD Audio Serial Data Input AC'97 Serial Data Input. Multiplexed with I2S Serial Data Input | 66 | GP0_I2C_CLK | General Purpose I2C Bus No 0 clock line |
| 67 | HDA_SDO / AC97_SDO / I2S_SDO | HD Audio Serial Data Output AC'97 Serial Data Output. Multiplexed with I2S Serial Data Output. | 68 | GP0_I2C_DAT | General Purpose I2C Bus No 0 data line |
| 69 | THRM# | Thermal Alarm active low | 70 | WDTRIG# | Watchdog trigger signal |
| 71 | THRMTRIP# | Thermal Trip indicates an overheating condition | 72 | WDOUT | Watchdog event indicator |
| 73 | GND | Power Ground | 74 | GND | Power Ground |
| 75 | USB_P7- / USB_SSTX0- | USB Port 7 Differential Pair-. Multiplexed with Superspeed USB transmit differential pair- | 76 | USB_P6- / USB_SSRX0- | USB Port 6 Differential Pair-. Multiplexed with Superspeed USB receive differential pair- |
| 77 | USB_P7+ / USB_SSTX0+ | USB Port 7 Differential Pair+. Multiplexed with Superspeed USB transmit differential pair+ | 78 | USB_P6+ / USB_SSRX0+ | USB Port 6 Differential Pair+. Multiplexed with Superspeed USB receive differential pair+ |
| 79 | USB_6_7_OC# | Over current detect input for USB port 6 and 7 | 80 | USB_4_5_OC# | Over current detect input for USB port 4 and 5 |
| 81 | USB_P5- / USB_SSTX1- | USB Port 5 Differential Pair-. Multiplexed with Superspeed USB transmit differential pair- | 82 | USB_P4- / USB_SSRX1- | USB Port 4 Differential Pair-. Multiplexed with Superspeed USB receive differential pair- |
| 83 | USB_P5+ / USB_SSTX1+ | USB Port 5 Differential Pair+. Multiplexed with Superspeed USB transmit differential pair+ | 84 | USB_P4+ / USB_SSRX1+ | USB Port 4 Differential Pair+. Multiplexed with Superspeed USB receive differential pair+ |
| 85 | USB_2_3_OC# | Over current detect input for USB port 2 and 3 | 86 | USB_0_1_OC# | Over current detect input for USB port 0 and 1 |
| 87 | USB_P3- | USB Port 3 Differential Pair- | 88 | USB_P2- | USB Port 2 Differential Pair- |
| 89 | USB_P3+ | USB Port 3 Differential Pair+ | 90 | USB_P2+ | USB Port 2 Differential Pair+ |
| 91 | USB_CC | USB Client present detect pin | 92 | USB_ID | USB ID pin |
| 93 | USB_P1- | USB Port 1 Differential Pair- | 94 | USB_P0- | USB Port 0 Differential Pair- |
| 95 | USB_P1+ | USB Port 1 Differential Pair+ | 96 | USB_P0+ | USB Port 0 Differential Pair+ |
| 97 | GND | Power Ground | 98 | GND | Power Ground |
| 99 | eDP0_TX0+ / LVDS_A0+ | eDP Primary Channel 0+ LVDS Primary channel 0+ | 100 | eDP1_TX0+ / LVDS_B0+ | eDP Secondary channel 0+ LVDS Secondary channel 0+ |
| 101 | eDP0_TX0- / LVDS_A0- | eDP Primary channel 0- LVDS Primary channel 0- | 102 | eDP1_TX0- / LVDS_B0- | eDP Secondary channel 0- LVDS Secondary channel 0- |
| 103 | eDP0_TX1+ / LVDS_A1+ | eDP Primary channel 1+ LVDS Primary channel 1+ | 104 | eDP1_TX1+ / LVDS_B1+ | eDP Secondary channel 1+ LVDS Secondary channel 1+ |
| 105 | eDP0_TX1- / LVDS_A1- | eDP Primary channel 1- LVDS Primary channel 1- | 106 | eDP1_TX1- / LVDS_B1- | eDP Secondary channel 1- LVDS Secondary channel 1- |



| Pin | Signal | Description | Pin | Signal | Description |
|-----|--------------------------------|---|-----|-----------------------------|---|
| 107 | eDP0_TX2+ / LVDS_A2+ | eDP Primary channel 2+ LVDS Primary channel 2+ | 108 | eDP1_TX2+ / LVDS_B2+ | eDP Secondary channel 2+ LVDS Secondary channel 2+ |
| 109 | eDP0_TX2- / LVDS_A2- | eDP Primary channel 2- LVDS Primary channel 2- | 110 | eDP1_TX2- / LVDS_B2- | eDP Secondary channel 2- LVDS Secondary channel 2- |
| 111 | LVDS_PPEN | LVDS Power enable | 112 | LVDS_BLEN | LVDS Backlight enable |
| 113 | eDP0_TX3+ / LVDS_A3+ | eDP Primary channel 3+ LVDS Primary channel 3+ | 114 | eDP1_TX3+ / LVDS_B3+ | eDP Secondary channel 3+ LVDS Secondary channel 3+ |
| 115 | eDP0_TX3- / LVDS_A3- | eDP Primary channel 3- LVDS Primary channel 3- | 116 | eDP1_TX3- / LVDS_B3- | eDP Secondary channel 3- LVDS Secondary channel 3- |
| 117 | GND | Power Ground | 118 | GND | Power Ground |
| 119 | eDP0_AUX+ / LVDS_A_CLK+ | eDP Primary Auxilliary channel+ LVDS Primary channel CLK+ | 120 | eDP1_AUX+ / LVDS_B_CLK+ | eDP Secondary Auxiliary channel CLK+ LVDS Secondary channel CLK+ |
| 121 | eDP0_AUX- / LVDS_A_CLK- | eDP Primary Auxilliary channel- LVDS Primary channel CLK- | 122 | eDP1_AUX- / LVDS_B_CLK- | eDP Secondary Auxiliary channel CLK- LVDS Secondary channel CLK- |
| 123 | LVDS_BLT_CTRL / GP_PWM_OUT0 | PWM Backlight brightness General Purpose PWM Output | 124 | GP_1-Wire_Bus | General Purpose 1-wire bus interface |
| 125 | LVDS_DID_DAT / GP2_I2C_DAT | DDC Display ID Data line General Purpose I2C Data line | 126 | eDP0_HPD# / LVDS_BLC_DAT | SSC clock chip data line. Can be used as eDP primary hotplug detect |
| 127 | LVDS_DID_CLK / GP2_I2C_CLK | DDC Display ID Clock line General Purpose I2C Clock line | 128 | eDP1_HPD# / LVDS_BLC_CLK | SSC clock chip clock line. Can be used as eDP secondary hotplug detect |
| 129 | CAN0_TX | CAN TX Output for CAN Bus Channel 0 | 130 | CAN0_RX | CAN RX Input for CAN Bus Channel 0 |
| 131 | DP_LANE3+ / TMDS_CLK+ | DisplayPort differential pair line lane 3+. Multiplexed with TMDS differential pair clock+ | 132 | RSVD (Differential) | Reserved |
| 133 | DP_LANE3- / TMDS_CLK- | DisplayPort differential pair line lane 3-. Multiplexed with TMDS differential pair clock- | 134 | RSVD (Differential) | Reserved |
| 135 | GND | Power Ground | 136 | GND | Power Ground |
| 137 | DP_LANE1+ / TMDS_LANE1+ | DisplayPort differential pair line lane 1+ Multiplexed with TMDS differential pair lane1+ | 138 | DP_AUX+ | DisplayPort auxiliary channel |
| 139 | DP_LANE1- / TMDS_LANE1- | DisplayPort differential pair line lane 1- Multiplexed with TMDS differential pair lane1- | 140 | DP_AUX- | DisplayPort auxiliary channel |
| 141 | GND | Power Ground | 142 | GND | Power Ground |
| 143 | DP_LANE2+ / TMDS_LANE0+ | DisplayPort differential pair line lane 2+ Multiplexed with TMDS differential pair line lane0+ | 144 | RSVD (Differential Pair) | Reserved |
| 145 | DP_LANE2- / TMDS_LANE0- | DisplayPort differential pair line lane 2- Multiplexed with TMDS differential pair line lane0- | 146 | RSVD (Differential Pair) | Reserved |
| 147 | GND | Power Ground | 148 | GND | Power Ground |
| 149 | DP_LANE0+ / TMDS_LANE2+ | DisplayPort differential pair line lane 0+ Multiplexed with TMDS differential pair lane2+ | 150 | HDMI_CTRL_DAT | DDC based control signal (data) for HDMI/DVI device. |
| 151 | DP_LANE0- / TMDS_LANE2- | DisplayPort differential pair line lane 0- Multiplexed with TMDS differential pair lane2- | 152 | HDMI_CTRL_CLK | DDC based control signal (clock) for HDMI/DVI device. |
| 153 | DP_HDMI_HPD# | Hot plug detection | 154 | DP_HPD | DisplayPort Hot Plug Detect |
| 155 | PCIE_CLK_REF+ | PCI Express Reference Clock+ | 156 | PCIE_WAKE# | PCI Express Wake event |



| Pin | Signal | Description | Pin | Signal | Description |
|-----|-----------------------------|--|-----|----------------------------|--|
| 157 | PCIE_CLK_REF- | PCI Express Reference Clock- | 158 | PCIE_RST# | Reset Signal for external devices |
| 159 | GND | Power Ground | 160 | GND | Power Ground |
| 161 | PCIE3_TX+ | PCI Express Channel 3 Output+ | 162 | PCIE3_RX+ | PCI Express Channel 3 Input+ |
| 163 | PCIE3_TX- | PCI Express Channel 3 Output- | 164 | PCIE3_RX- | PCI Express Channel 3 Input- |
| 165 | GND | Power Ground | 166 | GND | Power Ground |
| 167 | PCIE2_TX+ | PCI Express Channel 2 Output+ | 168 | PCIE2_RX+ | PCI Express Channel 2 Input+ |
| 169 | PCIE2_TX- | PCI Express Channel 2 Output- | 170 | PCIE2_RX- | PCI Express Channel 2 Input- |
| 171 | UART0_TX | Serial Data Transmitter | 172 | UART0_RTS# | Request To Send handshake signal |
| 173 | PCIE1_TX+ | PCI Express Channel 1 Output+ | 174 | PCIE1_RX+ | PCI Express Channel 1 Input+ |
| 175 | PCIE1_TX- | PCI Express Channel 1 Output- | 176 | PCIE1_RX- | PCI Express Channel 1 Input- |
| 177 | UART0_RX | Serial Data Receiver | 178 | UART0_CTS# | Clear To Send handshake signal |
| 179 | PCIE0_TX+ | PCI Express Channel 0 Output+ | 180 | PCIE0_RX+ | PCI Express Channel 0 Input+ |
| 181 | PCIE0_TX- | PCI Express Channel 0 Output- | 182 | PCIE0_RX- | PCI Express Channel 0 Input- |
| 183 | GND | Power Ground | 184 | GND | Power Ground |
| 185 | LPC_AD0 / GPIO0 | LPC Interface Address Data 0 General Purpose input/output 0 | 186 | LPC_AD1 / GPIO1 | LPC Interface Address Data 1 General Purpose input/output 1 |
| 187 | LPC_AD2 / GPIO2 | LPC Interface Address Data 2 General Purpose input/output 2 | 188 | LPC_AD3 / GPIO3 | LPC Interface Address Data 3 General Purpose input/output 3 |
| 189 | LPC_CLK /GPIO4 | LPC Interface Clock General Purpose input/output 4 | 190 | LPC_FRAME# /GPIO5 | LPC frame indicator General Purpose input/output 5 |
| 191 | SERIRQ /GPIO6 | Serialized interrupt General Purpose input/output 6 | 192 | LPC_LDRQ# /GPIO7 | LPC DMA request General Purpose input/output 7 |
| 193 | VCC_RTC | 3V backup cell input | 194 | SPKR /GP_PWM_OUT2 | Output for audio enunciator General Purpose PWM Output |
| 195 | FAN_TACHOIN /GP_TIMER_IN | Fan tachometer input General Purpose Timer In | 196 | FAN_PWMOUT /GP_PWM_OUT1 | Fan speed control (PWM) General Purpose PWM Output |
| 197 | GND | Power Ground | 198 | GND | Power Ground |
| 199 | SPI_MOSI | SPI Master serial output/Slave serial input | 200 | SPI_CS0# | SPI Chip Select 0 Output |
| 201 | SPI_MISO | SPI Master serial input/Slave serial output signal | 202 | SPI_CS1# | SPI Chip Select 1 Output |
| 203 | SPI_SCK | SPI Clock Output | 204 | MFG_NC4 | For manufacturing and debugging purposes |
| 205 | VCC_5V_SB | +5VDC,Standby ±5% | 206 | VCC_5V_SB | +5VDC Standby ±5% |
| 207 | MFG_NC0 | For manufacturing and debugging purposes | 208 | MFG_NC2 | For manufacturing and debugging purposes |
| 209 | MFG_NC1 | For manufacturing and debugging purposes | 210 | MFG_NC3 | For manufacturing and debugging purposes |
| 211 | VCC | Power supply +5VDC ±5% | 212 | VCC | Power supply +5VDC ±5% |
| 213 | VCC | Power supply +5VDC ±5% | 214 | VCC | Power supply +5VDC ±5% |
| 215 | VCC | Power supply +5VDC ±5% | 216 | VCC | Power supply +5VDC ±5% |
| 217 | VCC | Power supply +5VDC ±5% | 218 | VCC | Power supply +5VDC ±5% |
| 219 | VCC | Power supply +5VDC ±5% | 220 | VCC | Power supply +5VDC ±5% |
| 221 | VCC | Power supply +5VDC ±5% | 222 | VCC | Power supply +5VDC ±5% |
| 223 | VCC | Power supply +5VDC ±5% | 224 | VCC | Power supply +5VDC ±5% |
| 225 | VCC | Power supply +5VDC ±5% | 226 | VCC | Power supply +5VDC ±5% |



| Pin | Signal | Description | Pin | Signal | Description |
|-----|--------|------------------------|-----|--------|------------------------|
| 227 | VCC | Power supply +5VDC ±5% | 228 | VCC | Power supply +5VDC ±5% |
| 229 | VCC | Power supply +5VDC ±5% | 230 | VCC | Power supply +5VDC ±5% |

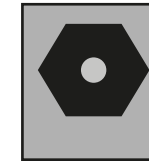
4.2 Input Power Supply

4.2.1 DC-IN - Connector X54

The conga-MCB/Qseven ARM provides a DC-IN power jack connector for notebook-type power supply. The carrier board supports input voltage range of 12-24V, with 19V nominal voltage. The recommended power supply rating is 90W, 19V @ 4.7A with 5.5x2.5mm plug (PN: 10000079).

| Pin | Signal |
|-----|--------|
| 1 | VCC |
| 2 | VCC |
| 3 | GND |

**DC-IN
Connector X54**



 **Connector Type**

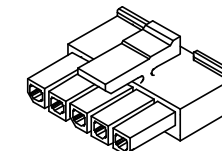
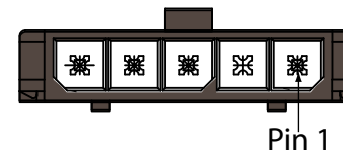
X54: 5.5x2.5mm D.C Power Jack (PN: 41500436)

4.2.2 Auxiliary DC-IN - Connector X58

The conga-MCB/Qseven ARM has a 5 pin power connector (X58) that provides the ability to connect a power source with voltage range of 12-24V, with 19V nominal voltage and 5V ±5% standby voltage. The 5V ±5% standby voltage is an optional voltage supported by ATX mode. You can also use connector X54 for single voltage supply (without 5V Standby) thereby allowing the mini carrier to be a stand-alone carrier board.

| Pin | Signal |
|-----|---------------|
| 1 | VCC |
| 2 | VCC |
| 3 | GND |
| 4 | GND |
| 5 | +5V STB (±5%) |

**Auxiliary DC-IN
Connector X58**



 **Connector Type**

X58: 3mm Pitch Micro-Fit 3.0™ Receptacle (PN: 41500356).



4.2.2.1 AT/ATX Mode Selector - Jumper X65

Jumper X65 configures the power supply to operate in ATX or AT mode.

| Jumper X65 | Configuration |
|------------|--------------------|
| 1-2 | ATX mode (default) |
| 2-3 | AT mode |



Connector Type

X65: 2.54mm Grid Jumper

Jumper X65



4.2.3 Power Supply Control - Connector X20

The conga-MCB/Qseven ARM has an 8-pin power control connector (X20) that provides a connection to a 12V power source of a battery management module.

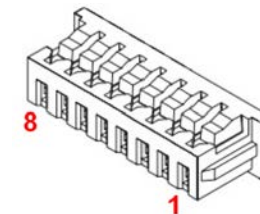
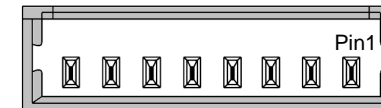
| Pin | Signal | Description |
|-----|-----------|-----------------------------------|
| 1 | GND | Ground |
| 2 | SDA | I2C bus Data |
| 3 | SCL | I2C bus Clock |
| 4 | BATLOW# | signal from Qseven® connector CN1 |
| 5 | SUS_STAT# | signal from Qseven® connector CN1 |
| 6 | SUS_S3# | signal from Qseven® connector CN1 |
| 7 | SUS_S5# | signal from Qseven® connector CN1 |
| 8 | PWRBTN# | Power Button |



Connector Type

X20: 1.25mm Pitch PicoBlade™ Header (PN: 41500357).

Power Connector X20





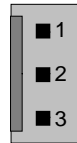
4.3 Fan - Connector X39

Connector X39 is a standard 3 pin header for fan connection. You can connect a 5V or 12V fan to connector X39 but must set the output voltage via jumper X40 (see section 4.3.1).

If a 12V fan is to be used, then the conga-MCB/Qseven ARM must be powered with a +12V input voltage.

| Pin | Signal |
|-----|---------------|
| 1 | GND |
| 2 | +VDD (12V/5V) |
| 3 | FAN_TACHOIN |

Fan (X39)



1: GND
2: +VDD (5V/12V*)
3: FAN_TACHOIN



Connector Type

X39: 2.54mm Standard 3-pin Fan Connector (PN: 41500022)

4.3.1 Fan Voltage Selection - Jumper X40

Jumper X40 provides the ability to select the fan's input voltage supplied to connector X39 via pin 2.

| Jumper X40 | Configuration |
|------------|---------------|
| 1-2 | 12V |
| 2-3 | +5V (default) |

Jumper X40



Connector Type

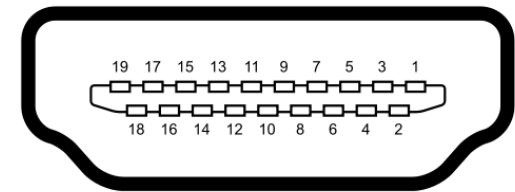
X40: 2.54mm Grid Jumper



4.4 HDMI - Connector X35

A high resolution monitor can be attached to conga-MCB/Qseven ARM via the HDMI port on connector X35. The HDMI connector supports DDC detection.

| Pin | Signal | Pin | Signal |
|-----|----------------------------|-----|---------------------------|
| 1 | TMDS Data2+ | 2 | TMDS Data2 Shield |
| 3 | TMDS Data2- | 4 | TMDS Data1+ |
| 5 | TMDS DATA1 Shield | 6 | TMDS Data1- |
| 7 | TMDS DATA0+ | 8 | TMDS Data0 Shield |
| 9 | TMDS DATA0- | 10 | TMDS Clock+ |
| 11 | TMDS Clock Shield | 12 | TMDS Clock- |
| 13 | CEC (not supported) | 14 | RESERVED |
| 15 | SCL (Serial Clock for DDC) | 16 | SDA (Serial Data for DDC) |
| 17 | DDC/CEC/HEC GND | 18 | +5V Power (max 50mA) |
| 19 | Hot Plug Detect | | |



Connector Type

X35: 19-Pin HDMI SMT Receptacle - without flange (PN: 41500434).

4.5 MIPI CSI-2 Camera - Connector X66

The X66 connector on the conga-MCB/Qseven ARM is used to connect MIPI CSI-2 Camera. The MIPI CSI-2 signals are routed from the Qseven module to the camera module connector (X66) via a bridge connector - X4.

To connect the MIPI camera interface from the Qseven module to the conga-MCB/Qseven ARM, you need a 36-pin, pitch 0.5mm flat flexible cable (PN: 48000026). You also need to connect a camera module to connector X66. The tested camera module is the JAL-2721 from KaiLap Technologies (PN: 44500025).

Flat Flexible Cable (Connector X4)

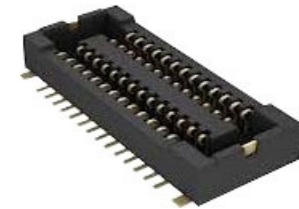




The X66 camera connector supports up to two MIPI-CSI 2.0 data lanes. The MIPI interfaces follow the MIPI-CSI-2 specifications as defined by the MIPI Alliance and support YUV420, YUV422, RGB444, RGB555, RGB565, and RAW 8b/10b/12b.

X66 Pin Description

| Pin # | Signal | Description |
|-------|--------------|---|
| 1 | +V2.8MIPI | Camera Module Power |
| 2 | +V2.8MIPI | Camera Module Power |
| 3 | I2C2_SCL | Camera Module Control Interface (CC1) Clock |
| 4 | I2C2_SDA | Camera Module Control Interface (CCI) Data |
| 5 | MIPI_CAM_RST | Camera Module Reset Signal |
| 6 | MIP_CAM_PWD | Camera Module PD Signal |
| 7 | +V1.8MIPI | Camera Module Power |
| 8 | +V1.5S | Camera Module Power |
| 9 | GND | Ground |
| 10 | MIPI_MCLK | Camera Module System Clock |
| 11 | GND | Ground |
| 12 | GND | Ground |
| 13 | CSI_D0- | CSI Data 0- |
| 14 | CSI_CLK+ | CSI Clock + |
| 15 | CSI_D0+ | CSI Data 0+ |
| 16 | CSI_CLK- | CSI Clock- |
| 17 | GND | Ground |
| 18 | GND | Ground |
| 19 | GND | Ground |
| 20 | CSI_D1+ | CSI Data1+ |
| 21 | GND | Ground |
| 22 | CSI_D1- | CSA Data1- |
| 23 | GND | Ground |
| 24 | GND | Ground |



Connector Type

X66: 24-pin 0.4mm Dual Row Socket (PN: 41500437)

X4: 36-Pin, Pitch 0.5mm Flat Flexible Cable (PN: 48000026)



4.6 UART - Connectors X59, X60

The conga-MCB/Qseven ARM provides two UART interfaces - UART0 on connector X59 and UART1 on connector X60. Connector X59 is a 10-pin connector with fully featured UART signals while connector X60 is a 6-pin connector with receive and transmit signals only.

Connector X59

| Pin # | Signal | Description |
|-------|-----------|--------------------------------------|
| 1 | NC | Not connected |
| 2 | NC | Not connected |
| 3 | NC | Not connected |
| 4 | NC | Not connected |
| 5 | UART0_CTS | UART0 Clear To Send handshake signal |
| 6 | UART0_TX | UART0 Serial Data Transmitter |
| 7 | UART0_RTS | UART0 Ready To Send handshake signal |
| 8 | UART0_RX | UART0 Serial Data Receiver |
| 9 | GND | Ground |
| 10 | NC | Not connected |

Connector X60

| Pin # | Signal | Description |
|-------|----------|-------------------------------|
| 1 | NC | Not connected |
| 2 | NC | Not connected |
| 3 | GND | Ground |
| 4 | UART1_TX | UART1 Serial Data Transmitter |
| 5 | UART1_RX | UART1 Serial Data Receiver |
| 6 | NC | Not connected |

Note

The RS232 adapter cable (PN: 48000023) for connector X60 is included in the congatec Qseven Evaluation kit. You can also order this cable separately from congatec AG. For more information, contact your congatec sales representative.

Connector Type

X59: 10-pin 1.25mm Pitch PicoBlade SMT Header (PN: 41500294).

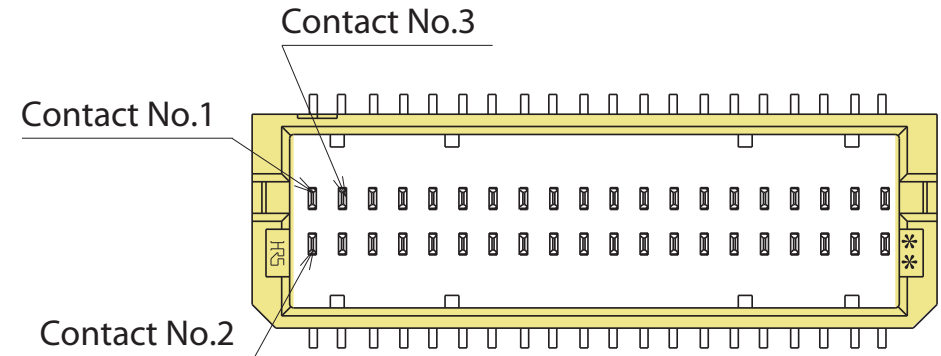
X60: 6-pin 1.25mm Pitch PicoBlade SMT Header (PN: 41500292).



4.7 LVDS - Connector X14

The conga-MCB/Qseven ARM supports a dual LVDS Interface with DDC detection via box header X14. With jumper X31, you can set the supply voltage for the LCD display to either 5V or 3.3V. Maximal output current is 1A.

| Pin | Signal | Pin | Signal |
|-----|-----------------|-----|-----------------------|
| 1 | LVDS B TX0N | 2 | LCD + VDD (+3.3V/+5V) |
| 3 | LVDS B TX0P | 4 | LCD + VDD (+3.3V/+5V) |
| 5 | GND | 6 | GND |
| 7 | LVDS B TX1N | 8 | GND |
| 9 | LVDS B TX1P | 10 | LVDS A TX0N |
| 11 | GND | 12 | LVDS A TX0P |
| 13 | LVDS B TX2N | 14 | GND |
| 15 | LVDS B TX2P | 16 | LVDS A TX1N |
| 17 | GND | 18 | LVDS A TX1P |
| 19 | LVDS B CLKN | 20 | GND |
| 21 | LVDS B CLKP | 22 | LVDS A TX2N |
| 23 | GND | 24 | LVDS A TX2P |
| 25 | LVDS B TX3N | 26 | GND |
| 27 | LVDS B TX3P | 28 | LVDS A CLKN |
| 29 | GND | 30 | LVDS A CLKP |
| 31 | GND | 32 | GND |
| 33 | LVDS VDD ENABLE | 34 | LVDS A TX3N |
| 35 | NC | 36 | LVDS A TX3P |
| 37 | LVDS BKL CTRL | 38 | LVDS SCL |
| 39 | LVDS BKL ENABLE | 40 | LVDS SDA |



Connector Type

X14: 1 mm Pitch Double Row, 40 Pos Female Socket (PN: 41500250).



4.7.1 Panel Voltage Selection - Jumper X31

Jumper X31 provides the ability to select the LCD supply voltage for pins 2 and 4 of the LVDS connector X14.

| Jumper X31 | Configuration |
|------------|-----------------|
| 1-2 | +3.3V (default) |
| 2-3 | +5V |

Jumper X31



Connector Type

X31: 2.54mm Grid Jumper

4.8 Backlight - Connector X15

Connector X15 on the conga-MCB/Qseven ARM is a 4-pin box header designated for backlight voltage. Supply voltage for the backlight converter can be set to 12V or +5V with jumper X32. When the VCC is used as backlight voltage, a suitable backlight converter must be used. Maximal output current is 1A.

| Pin | Signal |
|-----|-----------------------|
| 1 | VDD BCKL (VCC*/+5V) |
| 2 | GND |
| 3 | BCKL EN (High active) |
| 4 | BCKL CTRL* |

Backlight Power (X15)



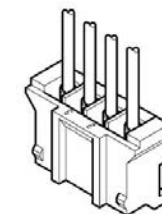
Note

* VCC is the input power supply voltage of conga-MCB/Qseven ARM.

*BCKL_CTRL signal is controlled by the I²C bus and originates from the Qseven[®] module.

Connector Type

X15: 2.00mm Pitch 4 Pos Box Header (PN: 41500325).





4.8.1 Backlight Voltage Selection - Jumper X32

Jumper X32 provides the ability to select the backlight supply voltage for pin 1 of connector X15.

| Jumper X32 | Configuration |
|------------|---------------|
| 1-2 | 12V |
| 2-3 | +5V (default) |



If a 12V backlight inverter is to be used, then 12V VCC has to be present and jumper X32 set to position 1-2. BCKL_CTRL signal is controlled by the I²C bus and originates from Qseven[®] module.

Connector Type

X32: 2.54mm Grid Jumper

Jumper X32



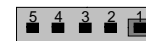
4.9 CAN Bus - Connector X38

The conga-MCB/Qseven ARM provides two Controller Area Network bus interfaces - CAN 0 on connector X38 and CAN 1 on connector X41. Only CAN 0 connector - a 5-pin header connector is assembled by default. CAN 1 is an optional interface, and therefore not assembled by default. Connector X38 also provides +5V power supply for an external CAN device via 750mA fuse. Supplying power to the CAN device via the Qseven[®] mini carrier power input is optional.

Additionally with jumper X64, you can enable or disable the 120 ohm resistor termination for CAN 0.

| Pin | Signal |
|-----|---------------------|
| 1 | +5V / 12V |
| 2 | CAN Low bus output |
| 3 | GND |
| 4 | CAN High bus output |
| 5 | NC |

**CAN Bus 0
X38**



Jumper X64



Connector Type

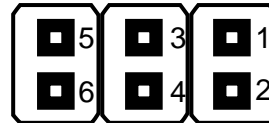
X38: 5-Pin 2.54mm Pitch Housing (PN: 4150031)



4.10 Auxiliary Audio Header (Line-IN/Line-OUT) - Connector X45

The conga-MCB/Qseven ARM provides a header connector X45 for analog audio Line-IN and Line-OUT connection. This header is not assembled by default.

**Line In/Out Header
Connector X45**



Connector Type

X45: 2.5mm header connector (PN: 41500034)

4.11 Audio Jack (Headphone/MIC-IN) - Connector X47

Stereo analog audio signals are provided via 3.5mm 4-pin audio jack connector X47. The 4-pin audio jack connector provides headphone and MIC-IN capabilities.

**Headphone and MIC-IN
Connector X47**



Connector Type

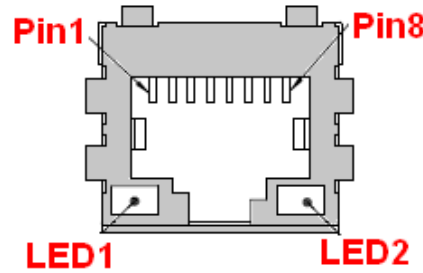
X47: Standard 3.5mm 4-pin Audio SMD Jack connector (PN: 41500416).



4.12 Ethernet - Connector X3

The conga-MCB/Qseven ARM has an RJ45 connector with integrated magnetics to support Gigabit Ethernet on the X3 connector. Additionally, “Link” and “Activity” LED indicators are integrated within the LAN connector.

| Pin | Signal |
|-----|-----------|
| 1 | GbE MDI0P |
| 2 | GbE MDI0N |
| 3 | GbE MDI1P |
| 4 | GbE MDI2P |
| 5 | GbE MDI2N |
| 6 | GbE MDI1N |
| 7 | GbE MDI3P |
| 8 | GbE MDI3N |



| Action | Description |
|----------------------|--------------|
| LED 1 Green lit | Link |
| LED 1 Green blinking | Activity |
| LED 2 Green lit | Link 100Mbit |
| LED 2 Yellow lit | Link 1 Gbit |

Connector Type

X3: Standard 8-Pin RJ45 Male Connector (PN: 41500355).

4.13 USB 2.0 - Connectors X48,X49,X50,X51

The conga-MCB/Qseven ARM provides four USB ports - three USB 2.0 host ports (connectors X49,X50,X51) and one USB OTG port (connector X48). The USB signals are routed directly from port 0-3 of the Qseven module.

The USB OTG can operate as host or client. Support for USB 2.0 and/or 1.1 devices depends on the Qseven® module used.

| Pin | Signal |
|-----|--------|
| 1 | +5V |
| 2 | DATA- |
| 3 | DATA+ |
| 4 | GND |

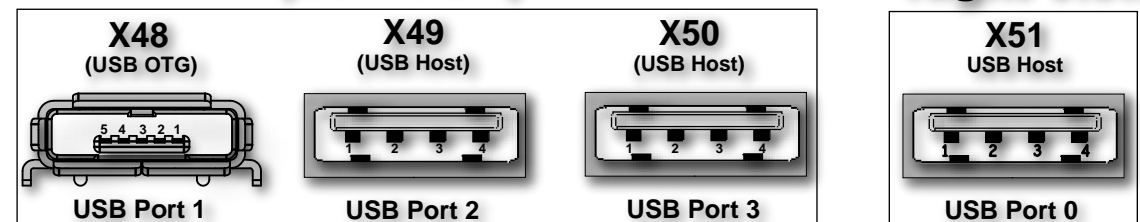
Connector Type

X48: Micro USB Type A/B Receptacle (PN: 41500429)

X49,50: USB Type A 4-Pos Right Angled Female Connector (PN: 41500111)

X51: USB Type A 4-Pos SMT Female Connector (PN:41500491)

(Left View)



Right View



4.14 GPIOs - Connector X57

The General Purpose Input/Output pins are available on connector X57. Connector X57 signals are shown below:

| Pin | Signal | Description |
|-----|------------|-----------------------------------|
| 1 | SMB_ALERT# | System Management Bus Alert input |
| 2 | GPIO1 | General Purpose Input/Output 1 |
| 3 | GPIO2 | General Purpose Input/Output 2 |
| 4 | GPIO3 | General Purpose Input/Output 3 |
| 5 | GPIO4 | General Purpose Input/Output 4 |
| 6 | GPIO5 | General Purpose Input/Output 5 |
| 7 | GND | Ground |



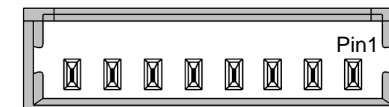
Connector X57 is not assembled by default.

4.15 Android Buttons Header - Connector X53

With connector X53, you can connect external android buttons on the conga-MCB/Qseven ARM. The pin description is shown below:

| Pin | Signal | Description |
|-----|------------|--|
| 1 | PWRBTN# | Power button signal |
| 2 | KEY_VOL_UP | Increases volume |
| 3 | HOME | Returns to the main home screen |
| 4 | SEARCH | Brings up the search function |
| 5 | BACK | Takes you a level back in an app or a page back in a browser |
| 6 | MENU | Displays additional options in an application |
| 7 | KEY_VOL_DN | Decreases volume |
| 8 | GND | Ground |

Android Button Connector X53



Connector Type

X53: 8-Pin 1.25 Pitch PicoBlade Header (PN: 41500357)



The android button signals are also routed to switches SW1-SW10 on the conga-MCB/Qseven ARM carrier board.

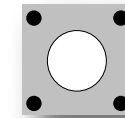


4.16 Onboard Android Buttons - SW1 - SW10

The conga-MCB/Qseven ARM offers the following android buttons:

| Button | Switch | Function |
|---------------|--------|--|
| Power Button | SW1 | Powers the android device on and off |
| Sleep Button | SW2 | Places the android device in sleep mode |
| Reset Button | SW3 | Resets the android device |
| LID Button | SW4 | Controls the |
| Vol+ | SW5 | Increases volume |
| Home Button | SW6 | Returns to the main home screen |
| Search Button | SW7 | Brings up the search function |
| Back Button | SW8 | Takes you a level back in an app or a page back in a browser |
| Menu Button | SW9 | Displays additional options in an application |
| Vol- | SW10 | Decreases volume |

Android Buttons



SW1 - SW10

Connector Type

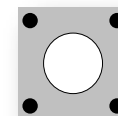
SW1-SW10: 4.9x4.9x1.5mm SMD Button (PN: 47500025)

4.16.1 Power and Reset Buttons

The conga-MCB/Qseven ARM provides a power button (SW1) and a reset button (SW3). The power button functions only if the conga-MCB/Qseven ARM power is supplied by an ATX power supply (for example when using the congatec ATX cable adapter for conga-MCB/Qseven ARM). Therefore to use the power button, you must connect the carrier board to an ATX power supply.

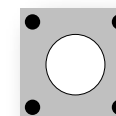
Additionally, you can use the reset button to invoke the hardware reset signal for the system. If the conga-MCB/Qseven ARM is supplied from a single power source or a power source working in AT mode, the carrier board will start immediately after the supply voltage is connected to power connector X54 or X58.

Power On



SW1

Reset

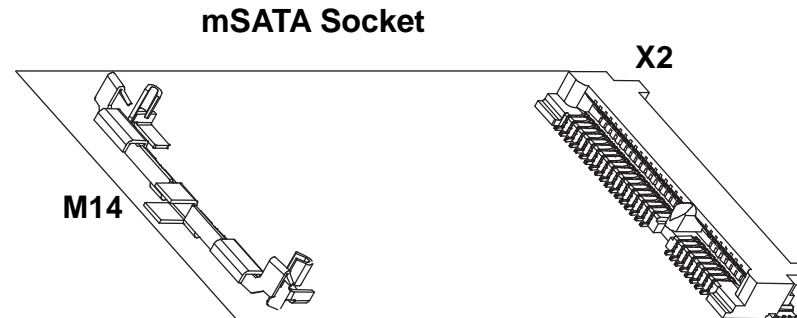


SW3



4.17 mSATA Socket - Connector X2

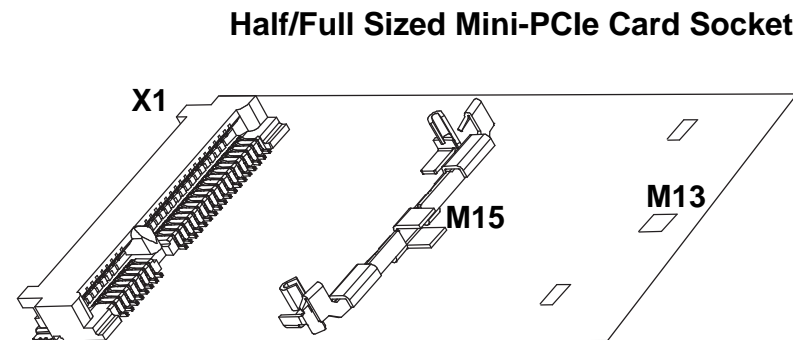
The conga-MCB/Qseven ARM provides mini-SATA connector on the bottom side. The mSATA connector and the mini-PCIe connector are similar in appearance. They are also pin compatible. However, the data signals of mSATA connector connects to the SATA host controller instead of the PCI Express host controller.



4.18 Mini-PCIe Card Socket - Connector X1

The conga-MCB/Qseven ARM is equipped with a PCI Express Mini Card socket. The mini-PCI card socket is designed to support half and full sized mini PCI card. You can locate it on the bottom side of the conga-MCB/Qseven ARM.

PCI Express Mini Card is a unique small size form factor optimized for mobile computing platforms equipped with communication applications such as Wireless LAN. Connector X1 on the bottom side of the conga-MCB/Qseven ARM provides an interface to insert a standard PCIe Mini Card.



Connector Type

X1: Standard 52 Pos. Mini PCI Express Connector (PN: 41500087).



4.19 SD/MMC 4.0 Card Socket - Connector X9

The X9 socket on the bottom side of conga-MCB/Qseven ARM offers an interface for SD Card, SDHC Card and MMC Plus card media.

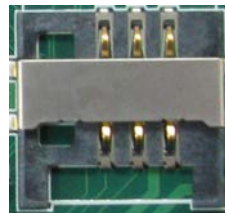


Connector Type

X9: SD/MMC 4.0 Card Socket (PN: 41500334).

4.20 SIM Card Slot - Connector X62

Connector X62 on the bottom side of the conga-MCB/Qseven ARM provides a slot for connecting sim card.



Connector Type

X62: Sim Card Connector (PN: 41500304)



4.21 CMOS Battery - Connector M12

The conga-MCB/Qseven ARM includes a battery that supplies the RTC and CMOS memory of the Qseven® CPU module. The battery provides 3V power. The specified battery type is CR2032.

CMOS Battery CR2032



Connector Type

M12: CR2032 CMOS Battery Holder (PN: 46500006)

Note

To fulfill the requirements of the EN60950, the conga-MCB/Qseven ARM incorporates two current-limiting devices (resistor and diode) in the battery power supply path.

Warning

Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.



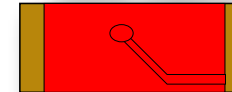
5 Additional Features

5.1 Red LEDs

There are two red LEDs found on the conga-MCB/Qseven ARM. The table below describes the functions of the LEDs.

| LED | Function When Lit |
|-----|--|
| D4 | mSATA Active - Indicates activity of mSATA |
| D5 | SD Card Active - indicates activity of SD Card |

Red LEDs

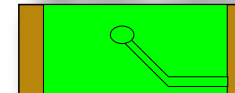


5.2 Power Indication LEDs

There are six green LEDs located on the conga-MCB/Qseven ARM. LEDs D16-D18 indicate the presence of supply voltages on the carrier board. The table below describes the functions of the LEDs.

| LED | Function When Lit |
|-----|------------------------------|
| D16 | Indicates +3.3V is present |
| D17 | Indicates +5V is present |
| D18 | Indicates +5V STB is present |

Green LEDs

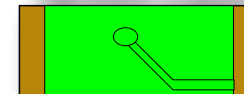


5.3 PCI Mini Card Activity LEDs

There are six green LEDs located on the conga-MCB/Qseven ARM. LEDs D1-D3 indicate PCIe Mini Card activity. The table below describes the functions of the LEDs.

| LED | Function When Lit |
|-----|---|
| D1 | WWAN - indicates activity of wireless wide area network |
| D2 | WLAN - indicates activity of wireless local area network |
| D3 | WPAN - indicates activity of wireless personal area network |

Green LEDs





6 Cables

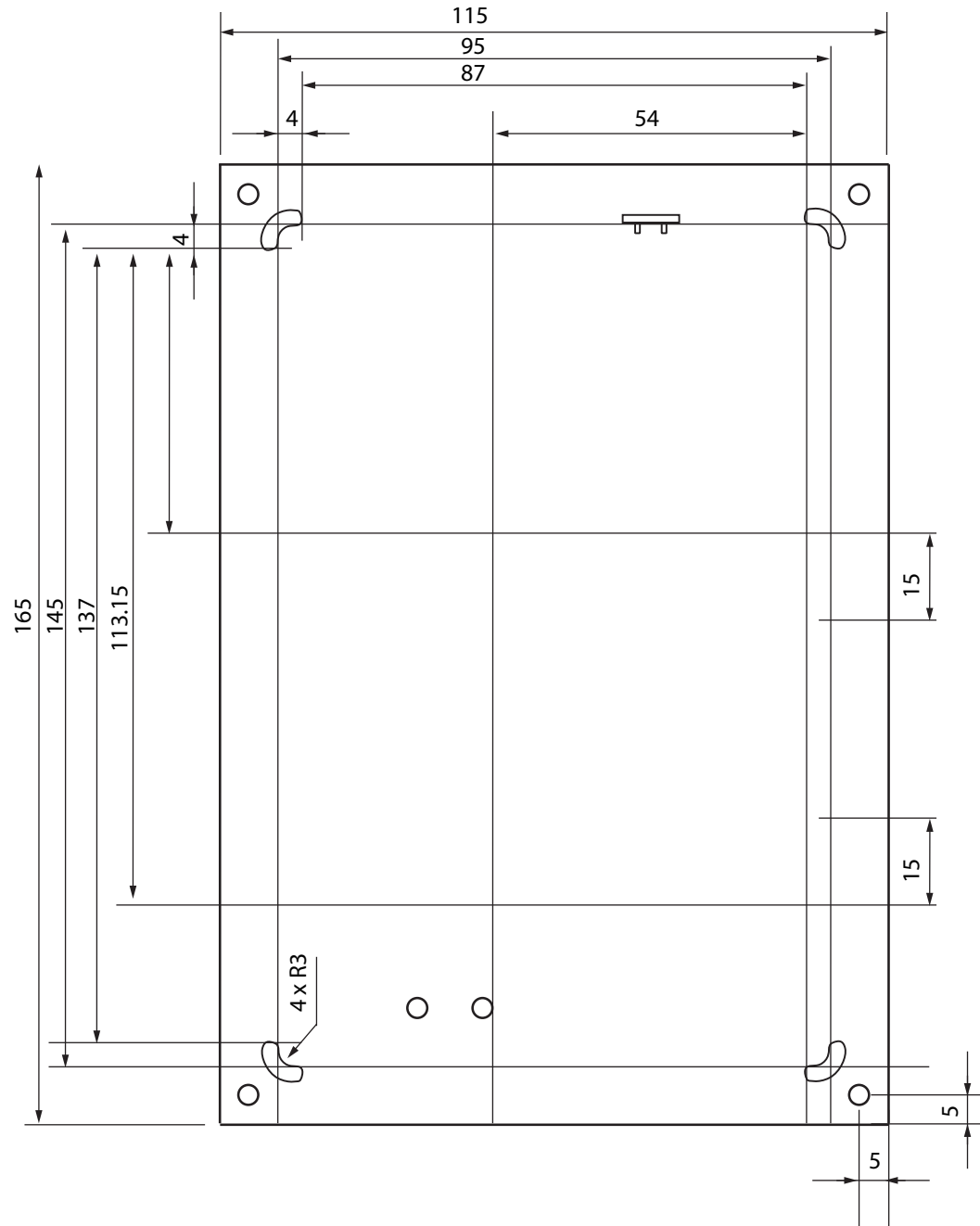
There are several cables that can be used with the conga-MCB/Qseven ARM mini carrier board.

The table below lists their part numbers and describes their functions.

| Part Number | Name | Discription |
|-------------|--------------------------|---|
| | Cable kit | Complete cable kit for conga-MCB/Qseven ARM |
| 14000027 | cab-MCB-Power | Power cable for conga-MCB/Qseven ARM connector X58 with 4 mm female banana plug. |
| 14000033 | cab-MCB-LVDS | LVDS display data cable for conga-MCB/Qseven ARM connector X14. |
| 14000034 | cab-MCB-BKL | Backlight cable for conga-MCB/Qseven ARM connector X15. |
| 48000023 | RS-232 adapter cable | RS-232 adapter cable for congatec ARM modules with 6-pin PicoBlade connector and 2x D-SUB 9-pin connector |
| 48000026 | 36-pins FFC, pitch 0.5mm | 36-pins flat flexible cable for conga-MCB/Qseven ARM connector X66 |



7 Mechanical Drawing





8 Industry Specifications

The list below provides links to industry specifications of the interfaces that can be found on the conga-MCB/Qseven ARM mini carrier board.

| Specification | Link |
|---|---|
| Qseven™ Specification, Revision | http://www.qseven-standard.org |
| Qseven™ Design Guide | http://www.qseven-standard.org |
| PCI Express Base Specification | http://www.pcisig.com/specifications |
| Universal Serial Bus (USB) Specification, Revision 2.0 | http://www.usb.org/home |
| Serial ATA Specification, Revision 1.0a | http://www.serialata.org |
| Low Pin Count Interface Specification, Revision 1.0 (LPC) | http://developer.intel.com/design/chipsets/industry/lpc.htm |