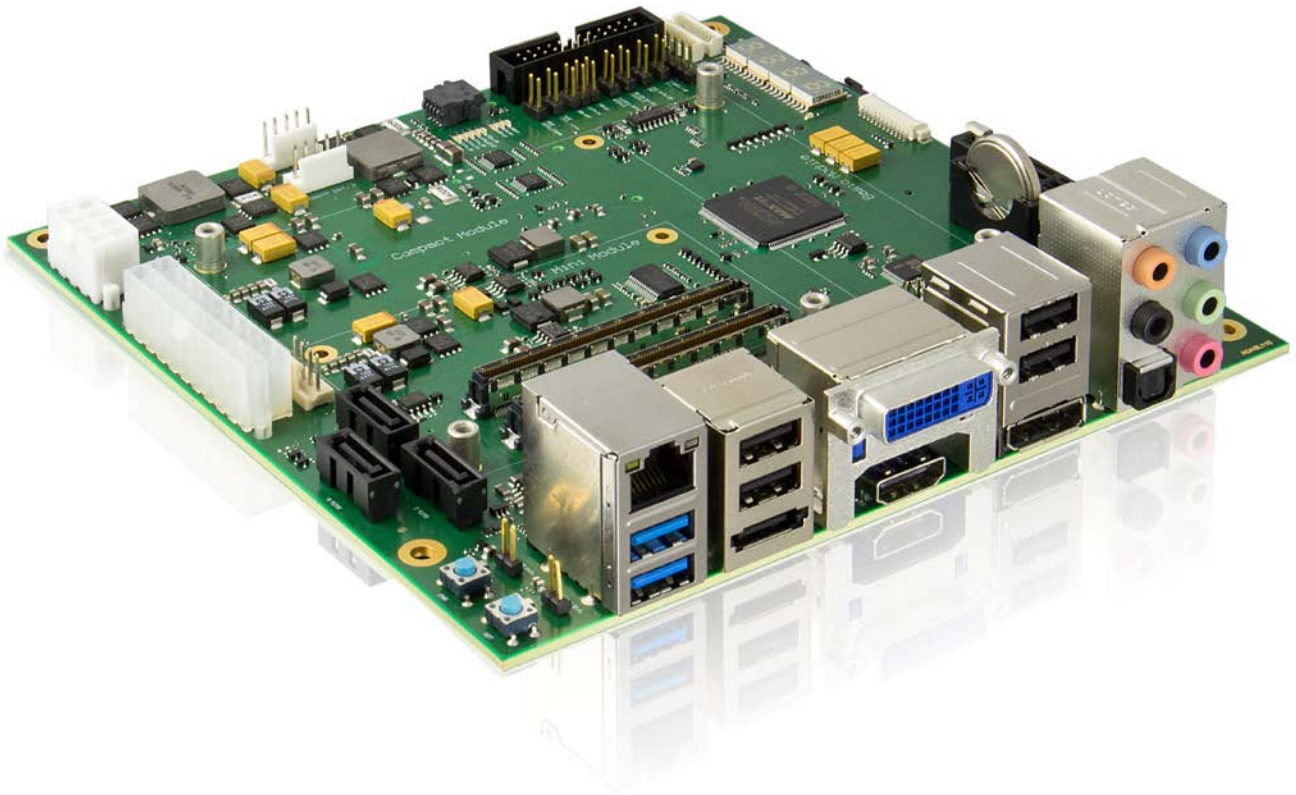


» Kontron User's Guide «



COMe Reference Carrier Type 6

Document Revision 1.1

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1 User Information

1.1 About This Document

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1.4 Standards

Kontron Embedded Modules GmbH is certified to ISO 9000 standards.

1.5 Warranty

This Kontron Embedded Modules GmbH product is warranted against defects in material and workmanship for the warranty period from the date of shipment. During the warranty period, Kontron Embedded Modules GmbH will at its discretion decide to repair or replace defective products.

Within the warranty period, the repair of products is free of charge as long as warranty conditions are observed.

The warranty does not apply to defects resulting from improper or inadequate maintenance or handling by the buyer, unauthorized modification or misuse, operation outside of the product's environmental specifications or improper installation or maintenance.

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1.6 Technical Support

Technicians and engineers from Kontron Embedded Modules GmbH and/or its subsidiaries are available for technical support. We are committed to making our product easy to use and will help you use our products in your systems.

Please consult our Web site at <http://www.kontron.com/support> for the latest product documentation, utilities, drivers and support contacts. Consult our customer section <http://emdcustomersection.kontron.com> for the latest BIOS downloads, Product Change Notifications and additional tools and software. In any case you can always contact your board supplier for technical support.

2 Introduction

The COMe Reference Carrier Type 6 for Type 6 modules is designed to allow embedded application developers to get up and running quickly on the COM Express® basic platform, giving them a head start on the total system design. Simply select a Type 6 CPU module, then Plug & Go. The COMe Reference Carrier Type 6 is an evaluation backplane for COM Express® Computer-on-Modules following the PICMG COM.0 specification Rev 1.0 or Rev 2.0 with pin-out Type 10.

Ordering Information

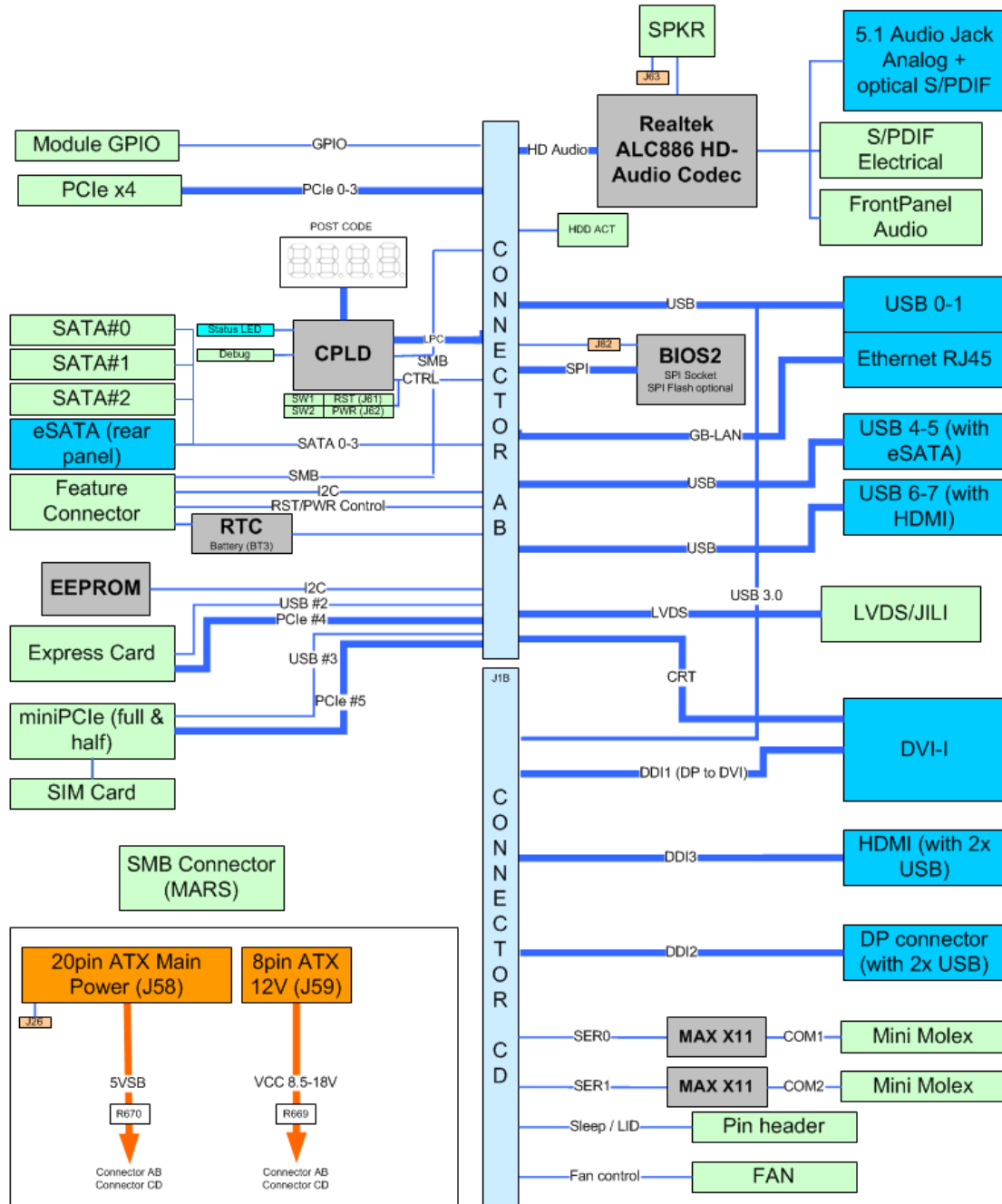
Article	Part-No.	Description
COMe Ref. Carrier T6	38114-0000-00-0	COM Express® Reference Carrier Type 6

3 Specification

3.1 Functional Specification

- » COM Express® COM.0 Rev 2.0 baseboard compatible to Type 6 pin-out based modules
- » ATX supply / single supply use
- » DVI/CRT on DVI-I
- » Display Port (++) connector
- » HDMI connector
- » LVDS
- » HD audio available on frontpanel, rear panel, S/PDIF
- » Legacy free (no Super I/O)
- » PCIe x4 slot (lanes 1-4)
- » Express Card (lane 5)
- » mPCIe slot (lane 6)
- » SPI flash socket
- » feature connector (I2C, SMB)
- » POST Code (Port 80h/81h)
- » Gigabit Ethernet
- » 3 SATA
- » eSATA on rear panel
- » GPIO pin header
- » 6 USB ports (2x USB 3.0)
- » SIM Card slot for mPCIe
- » Serial port connections for module COMs according to COM Express® spec
- » LID#/SLEEP# pin header
- » 4 pin FAN header
- » SMART Battery support for 2 independent batteries

3.2 Block Diagram



3.3 Mechanical Specification

- » Size: mini ITX (170mm x 170mm)
- » max height on top: 36 mm (rear panel audio connector)

3.4 Electrical Specification

Supply Voltage

8,5V – 18V

Power Supply Rise time

- » The input voltages shall rise from $\leq 10\%$ of nominal to within the regulation ranges within 0.1ms to 20ms.
- » There must be a smooth and continuous ramp of each DC input voltage from 10% to 90% of its final set-point following the ATX specification

Supply Voltage Ripple

- » Maximum 100 mV peak to peak 0-20MHz

Maximum Current

The maximum current on the COMe Ref. Carrier T6 inclusive the module and all other connector consumers must not exceed 16A. That leads to a maximum power of 136W at 8.5V input voltage and 288W at 18V input voltage.

3.5 Environmental Specification

Ambient temperature

- » Operating: 0°C to +60 °C
- » Non-operating: -20 to +75 °C

Humidity

- » Operating: 10% to 90% (non condensing)
- » Non operating: 5% to 95% (non condensing)

3.6 MTBF

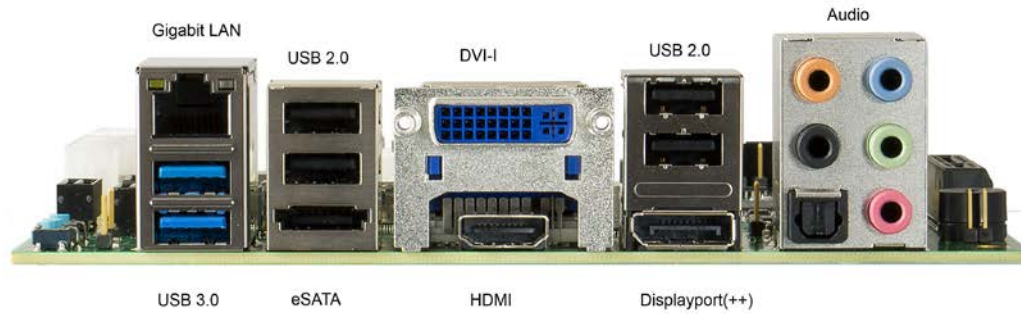
The following MTBF (Mean Time Between Failures) values were calculated using a combination of manufacturer's test data, if the data was available, and a Bellcore calculation for the remaining parts. The Bellcore calculation used is "Method 1 Case 1". In that particular method the components are assumed to be operating at a 50 % stress level in a 40° C ambient environment and the system is assumed to have not been burned in. Manufacturer's data has been used wherever possible. The manufacturer's data, when used, is specified at 50° C, so in that sense the following results are slightly conservative. The MTBF values shown below are for a 40° C in an office or telecommunications

environment. Higher temperatures and other environmental stresses (extreme altitude, vibration, salt water exposure, etc.) lower MTBF values.

» System MTBF: **tbd** hours

4 Connector Layout

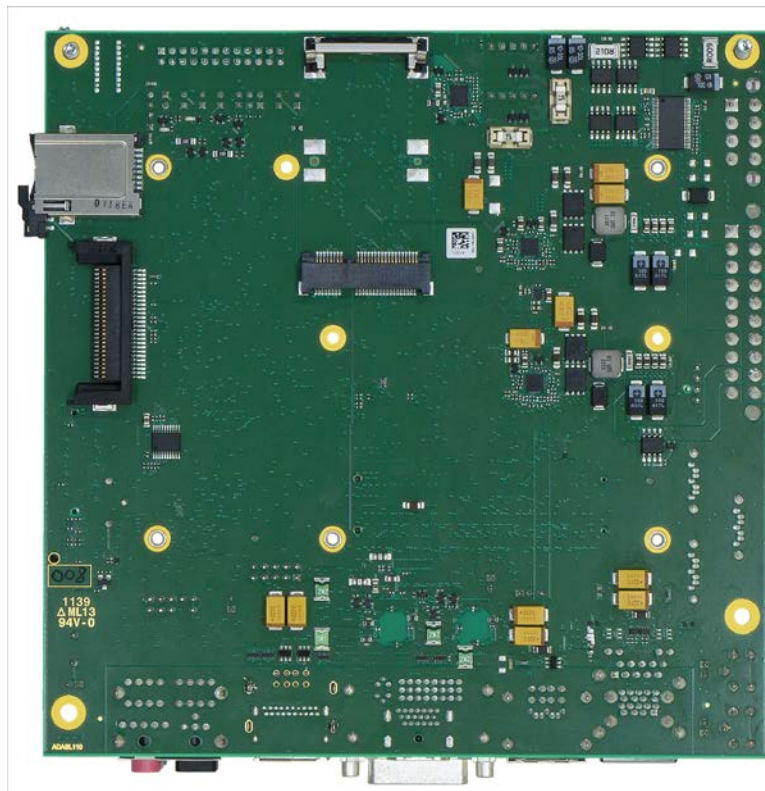
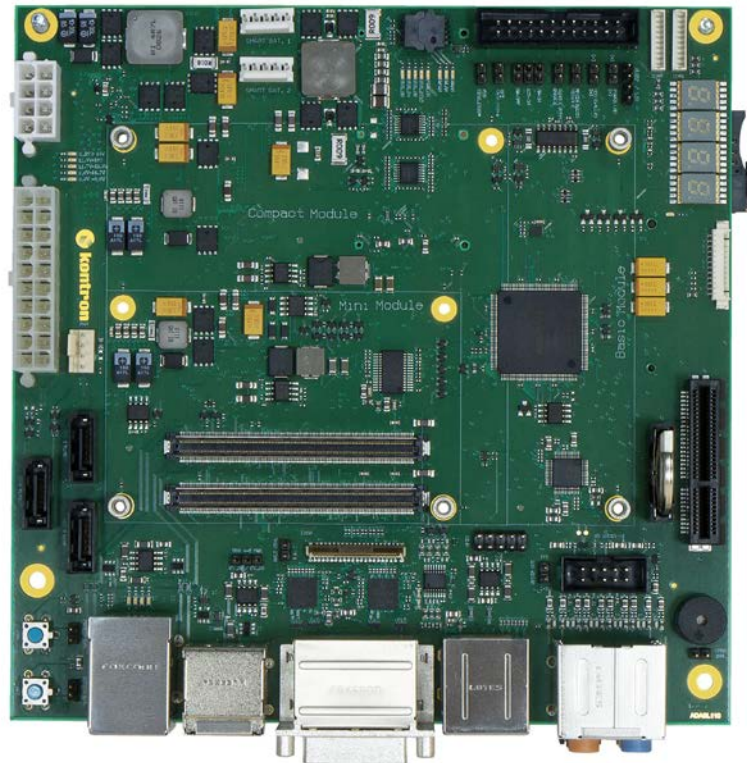
4.1 Rear Panel



The rear panel layout is based on an Intel miniITX mainboard, DH67CF. Therefore the I/O shield for DH67CF can be used for the COMe Ref. Carrier T6.

The I/O shield can be directly ordered from [Intel's spare parts store](#).

4.2 Connector Locations



4.3 Component overview

BT3	Battery Socket for RTC Battery
D69	HDD Activity LED
D139	POST Code port 81h high nibble
D140	POST Code port 81h low nibble
D141	POST Code port 80h low nibble
D142	POST Code port 80h high nibble
D151	Status LED: for Mini PCIe WWAN
D152	Status LED: Mini PCIe WLAN
D153	Status LED: Mini PCIe WPAN
D154	Status LED: GBit Ethernet Activity
D155	Status LED: GBit Ethernet Link1000
D156	Status LED: GBit Ethernet Link100
D157	Status LED: GBit Ethernet Link
D181	Status LED: Simcard Locked
D182	Status LED: 12.3V < Vin <18.0V
D183	Status LED: 11.7V < Vin <12.3V
D184	Status LED: 8.5V < Vin <11.7V
D185	Status LED: Suspend State
D186	Status LED: SUS_S5 Power OK
D187	Status LED: SUS_S4
D188	Status LED: Power OK
D189	Status LED: SUS_S3
D190	Status LED: Vin < 8.5V
D191	Status LED: Vin > 18.0V
D205	Status LED: POWER
J2	COM Express® Connector Row C and D
J3	SATA 0
J5	SATA 1
J9	Kontron Feature Connector
J16	Connector for external Reset Button
J17	External HDD activity LED
J26	JUMPER for ATX behavior
J33	SATA 2
J43	Front Panel HDAudio connector
J50	FAN Connector
J51	Rear Panel HDAudio connector
J55	LVDS FFC40
J57	Express Card
J58	ATX 20pin connector
J59	ATX_12V 8pin P4 Power Connector
J61	Connector for System Reset Button
J62	Connector for external Power Button
J63	Jumper for Speaker Enable
J69	Jumper for BIOS_DISO#

J72	Jumper for disabling optical HD Audio SPDIF
J80	SPI flash Connector
J82	Jumper for BIOS _DIS1#
J83	Ethernet / dual USB connector
J85	Jumper for ATX / single supply mode
J86	Jumper for Wireless Disable at mini PCI Express
J88	COM Express® Connector Row A and B
J89	LID# / SLEEP# Connector
J90	Express Card Connector
J93	SIM Card socket
J100	Jumper for Power Rail selection for USB4 and 5
J102	Serial COM2 Connector
J103	GPIO Connector
J104	PCIe mini latch for full size cards
J105	PCIe mini latch for half size cards
J106	PCIe x4 connector
J109	Serial COM1 Connector
J110	SMART Battery 2 Connector
J111	SMART Battery 1 Connector
J114	USB Connector for USB port 6 and 7
J115	Display Port Connector
J116	USB Connector (combined with eSATA) for USB port 4 and 5
J117	DVI-I Connector
J118	HDMI Connector
J119	Connector for external Power LED
J120	Pinheader to access LVDS backlight control (PWM)
SW1	Reset Button
SW2	Power Button
U105	CPLD for Power Control
U157	HD Audio Codec
U161	HDMI Level Shifter
U361	LTC1760 Smart Battery Manager
U364	HDMI Level Shifter

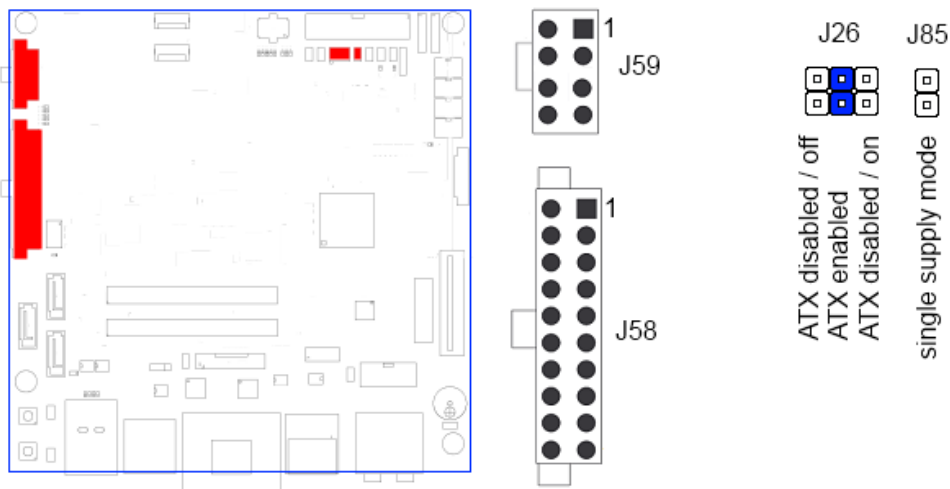
5 Connectors and Features

5.1 Power Supply

5.1.1 ATX Connector and Behavior Control

The COM Express® Reference Carrier Type 6 power supply follows the ATX 2.x specification and the baseboard should be supplied by connecting an ATX PSU with 20pin ATX (J58) and 8pin ATX_12V (J59) supply cable in correct orientation. The 8pin ATX_12V connector mainly supplies power to the module and allows powering the module directly in specified wide range power input. The module additionally is supplied with 5V standby voltage. Single supply mode is controlled by J85, and then the 20pin ATX connector J58 is not necessary to connect.

J26 overrides the PS_ON# signal in ATX powered mode.

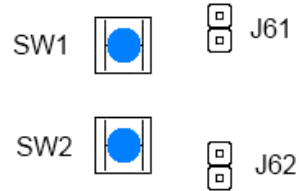
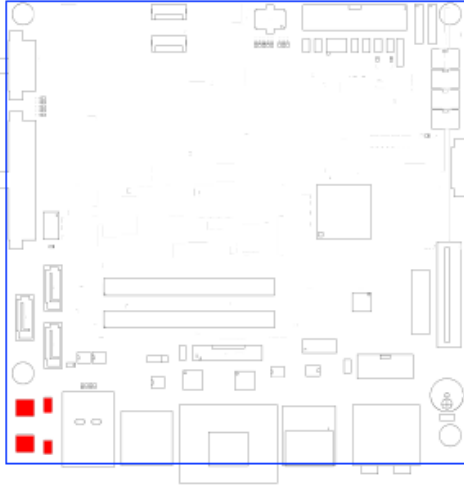


Pin	ATX Main Power (J58)	Pin	ATX Main Power (J58)
1 (Orange)	+3.3V	11 (Orange/Brown)	+3.3V / +3.3V sense
2 (Orange)	+3.3V	12 (Blue)	-12V
3 (Black)	GND	13 (Black)	GND
4 (Red)	+5V	14 (Green)	Power on
5 (Black)	GND	15 (Black)	GND
6 (Red)	+5V	16 (Black)	GND
7 (Black)	GND	17 (Black)	GND
8 (Grey)	PWR_OK	18	No connection
9 (Purple)	+5VSB	19 (Red)	+5V
10 (Yellow)	+12V	20 (Red)	+5V

Pin	ATX_12V (J59)	Pin	ATX_12V (J59)
1 (Black)	GND	5 (Yellow)	Module VCC (12V nominal)
2 (Black)	GND	6 (Yellow)	Module VCC (12V nominal)
3 (Black)	GND	7 (Yellow)	Module VCC (12V nominal)
4 (Black)	GND	8 (Yellow)	Module VCC (12V nominal)

5.1.2 Power- and Resetbutton

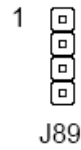
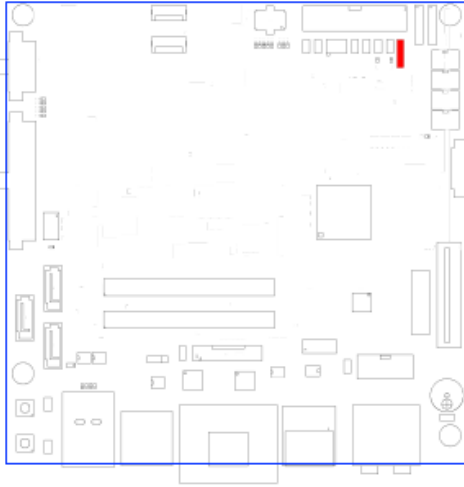
The COM Express® Reference Carrier Type 6 provides an onboard Reset Button (SW1) and Power Button (SW2). To connect a front panel button from your chassis use J40 (Power) or J42 (Reset).



Connector	Function
J61	Reset Button
SW1	
J62	Power Button
SW2	

5.1.3 LID# and SLEEP# Header

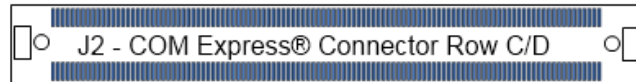
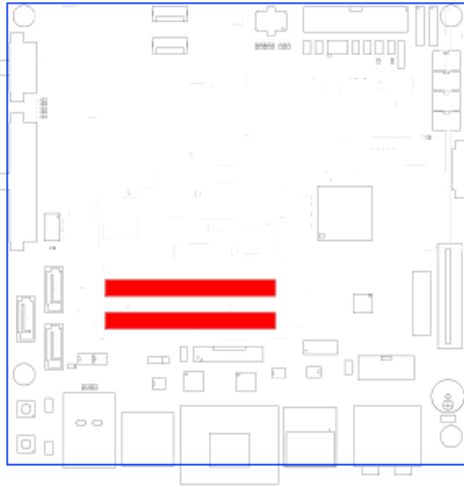
The specification update for PICMG COM.0 modules to revision 2.0 implements new signals for LID and Sleep. The low active signals can be simulated by J89 similar to notebook functionality of closing the lid or pressing the sleep button.



Pin	LID# SLEEP Header (J89)	Pin	LID# SLEEP Connector (J89)
1	LID#	3	GND
2	GND	4	SLEEP#

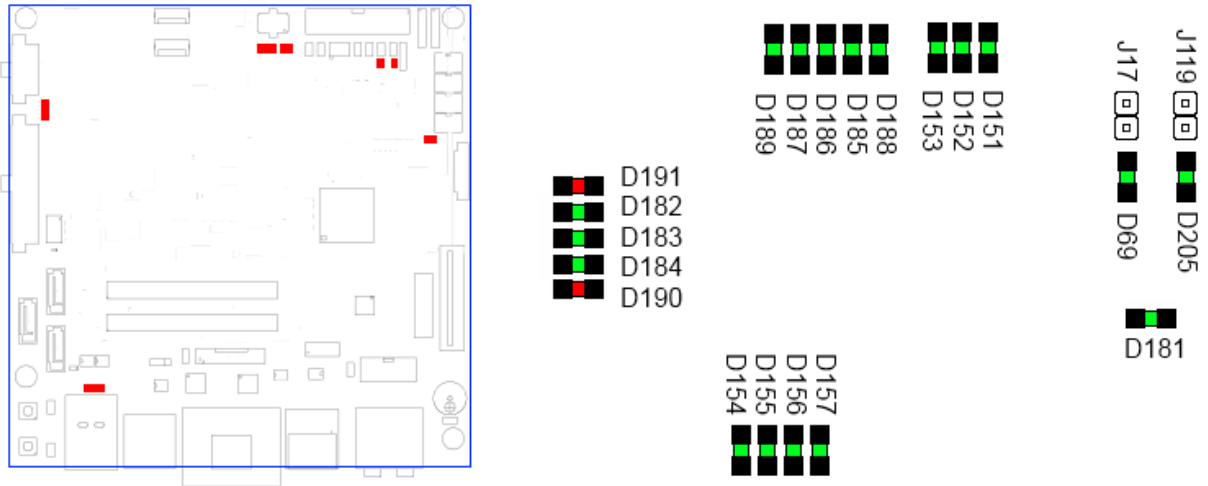
5.2 COM Express® Connector

The COM Express® Reference Carrier Type 6 is a carrier board for Type 6 based COM Express® Computer-on-Modules. They are based on two connectors with 2 rows with 440 pins overall. Please refer to your module documentation for detailed pin-out descriptions.



5.3 Status LEDs

The onboard main status and voltage LED D182-D191 indicates the current power state of the module and if all voltages are working correctly. Some additional status LED shows active or inactive slots and signals. See table below for detailed information.

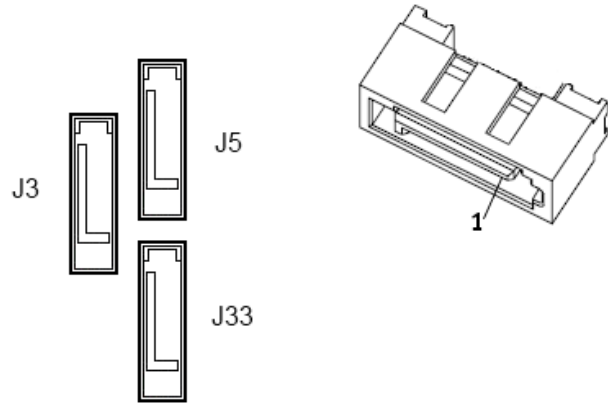
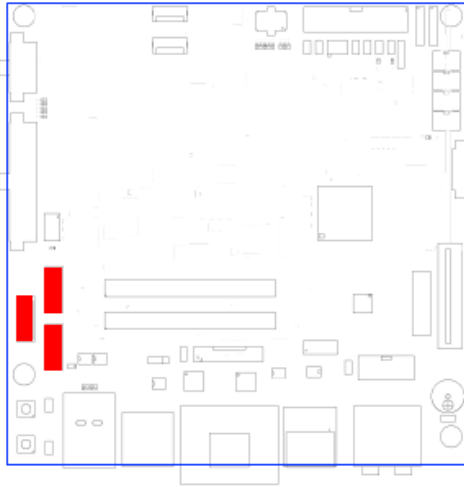


A front panel HDD LED can be connected HDD Activity connector J17 and a main Power LED can be connected via J119.

LED	Description	LED	Description
D69	HDD activity	D184	8.5V < Vin < 11.7V
D151	for Mini PCIe WWAN	D185	Suspend State
D152	Mini PCIe WLAN	D186	SUS_S5
D153	Mini PCIe WPAN	D187	SUS_S4
D154	Gbit Ethernet Activity	D188	Power OK
D155	Gbit Ethernet Link1000	D189	SUS_S3
D156	Gbit Ethernet Link100	D190	Vin < 8.5V
D157	Gbit Ethernet Link	D191	Vin > 18.0V
D181	Simcard Locked	D205	POWER
D182	12.3V < Vin < 18.0V	J17	HDD activity
D183	11.7V < Vin < 12.3V	J119	POWER

5.4 Serial ATA

The COM Express® Type 6 pin-out specification according to COM.0 specification revision 2.0 defines 4 SATA ports. The COM Express® Reference Carrier Type 6 provides 3 7-pin SATA data connectors as standard 1.27mm Pitch Serial ATA High Speed Header with Locking Latch. The 4th SATA port is routed to the eSATA connector.

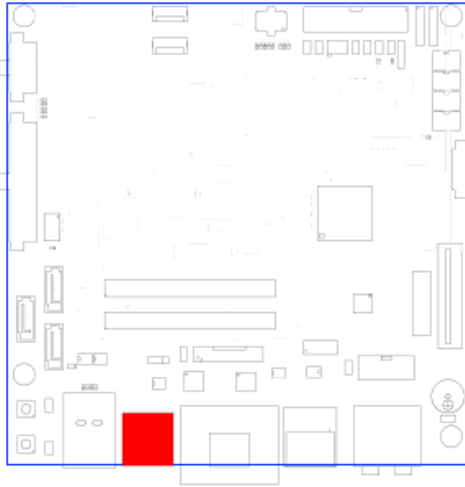


SATA Pin	Signal
1	Ground
2	Transmit +
3	Transmit -
4	Ground
5	Receive -
6	Receive +
7	Ground

Connector	SATA Port
J3	SATA #0
J5	SATA #1
J33	SATA #2

5.5 eSATA

COM Express® Reference Carrier Type 6 provides one port for external SATA on the rear panel. J116 offers 2 USB 2.0 ports and one additional eSATA port. With standard SATA interfacing from the module you can provide cable length up to 1.0 m. If the module supports eSATA mode on SATA port 3 up to 2.0 m cables can be used. Please refer to the manual of your COM Express® module, if this feature is supported.



USB 2.0

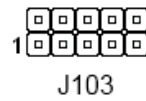
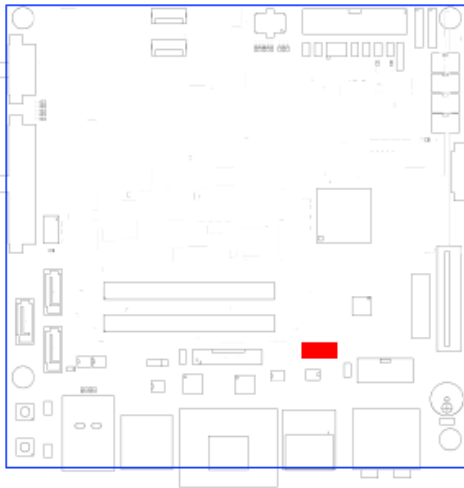
eSATA

J116

eSATA Pin	Signal
1	Ground
2	Transmit +
3	Transmit -
4	Ground
5	Receive -
6	Receive +
7	Ground

5.6 GPIO

The COM Express® Reference Carrier Type 6 provides 4 GPI and 4 GPO signals according to the COM Express® specification.

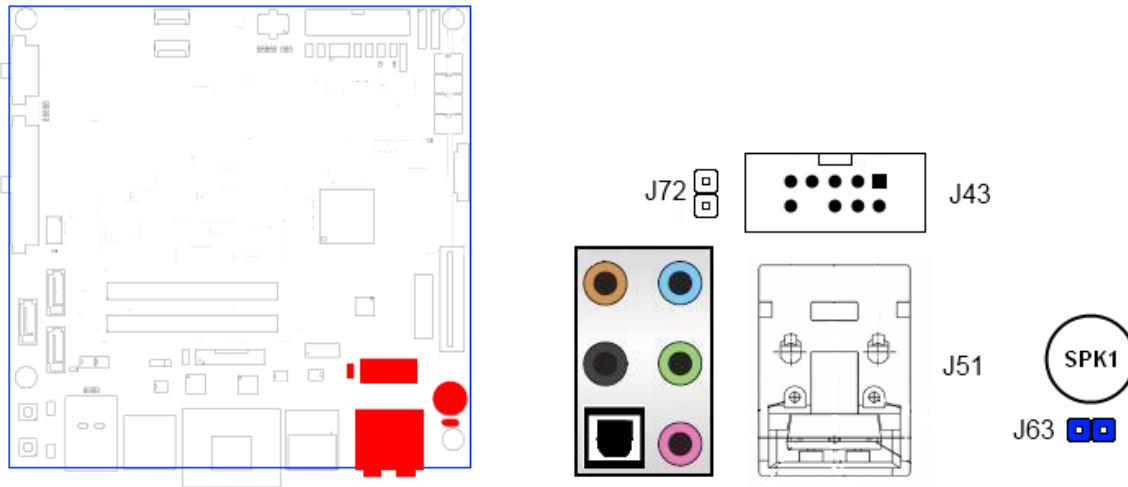


GPIO J48 PIN	Description	GPIO J48 Pin	Description
1	VCC 3.3V	2	GPO0
3	GPI0	4	GPO1
5	GPI1	6	GPO2
7	GPI2	8	GPO3
9	GPI3	10	GND

5.7 High Definition Audio

The COM Express® Reference carrier Type 6 provides HDAudio via Realtek ALC886 High Definition Audio Codec supporting analog, optical and digital audio connections.

The onboard buzzer SPK1 can be disabled by opening jumper J63 (default closed). Optical S/PDIF for Toslink connection is available on the grey connector of the rear panel audio connector J51.



Audio Connector J51 – Speaker Configuration

The Audio Connector J51 on COM Express® Reference Carrier Type 6 is a full featured analog audio jack for speaker configuration up to 6-channel and it allows an optical TOSLINK™ connection via optical cables.

J72 can be used for electrical S/PDIF signal.

J8	2-channel	4-channel	6-channel
Orange	-	-	Center/Subwoofer
Black	-	Rear Speaker	Side Speaker
Blue	Line In	Line In	Line In
Green	Line Out	Front Speaker	Front Speaker
Pink	Mic In	Mic In	Mic In

Note1: In addition to the default speaker settings, the analog audio Jacks can be reconfigured to perform different functions via the Realtek HDAudio Driver Software which is available on Kontron website. Only microphones still must be connected to the default pink jack.

Front Panel Audio Connector J43

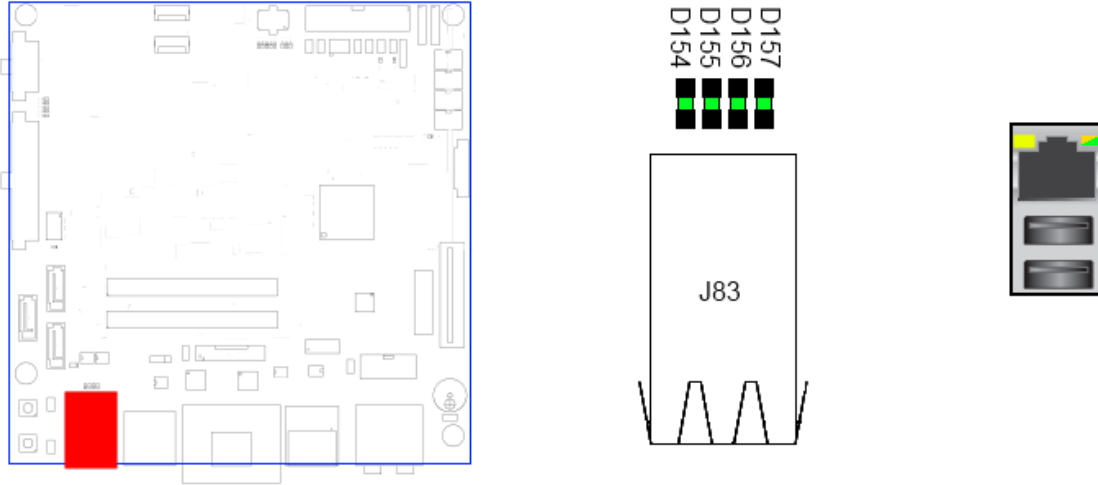
The front panel audio connector J43 allows connecting a chassis front panel audio with analog microphone input and stereo speaker output. Please use a HAD

Pin	Description
1	MIC2-L
2	GND
3	MIC2-R (MIC Power)
4	PRESENCE#
5	LINE2-R (LineOut-R)
6	MIC2-JD
7	SENSE
8	Key Pin
9	Line2-L (LineOut-L)
10	LINE2-JD

5.8 Ethernet

The COM Express® Reference Carrier Type 6 provides a RJ45/Dual USB Combo with a single RJ45 in combination with 2 USB ports (3.0) (USB 0/1). Ethernet Connector J83 with integrated magnetics and LED is configured to support modules with Gigabit Ethernet controller only. Modules with 10/100 MBit Ethernet controller are not supported.

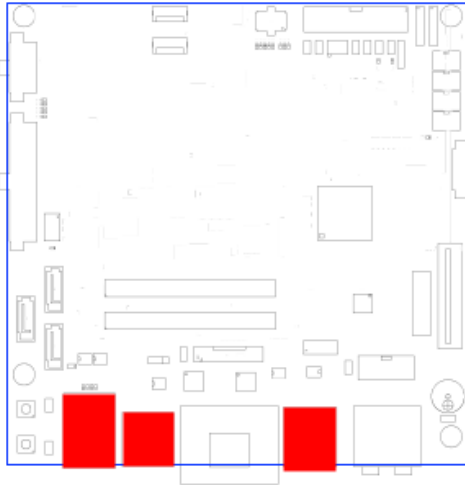
The proper function of the Ethernet LEDs depends on the module circuit.



Function	J83 Left LED	J83 Right LED	Status LED
Activity	Yellow blinking	-	D154
Link	Yellow	-	D157
Link10	-	Off	-
Link100	-	Orange	D156
Link1000	-	Green	D157

5.9 USB

The COM Express® module's USB ports 0 to 1 are available on rear panel connector J83 together with Ethernet. They provide USB 3.0 function, when the module is able to support USB 3.0. USB port 4 and 5 is available on rear panel connector J116 together with eSATA and USB port 6 and 7 on connector J115 together with Displayport.



J83



J116



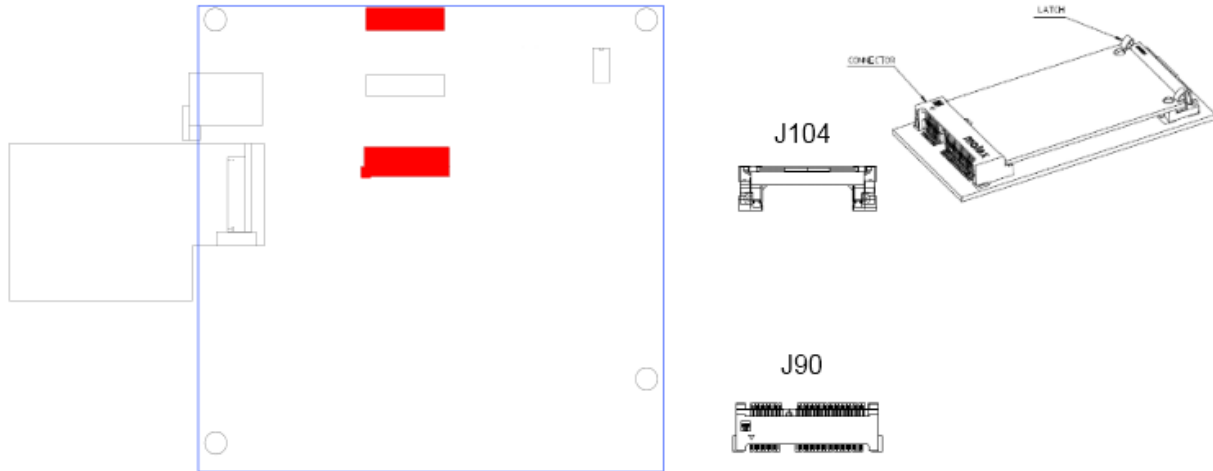
J115

The COM Express® Ref Carrier T6 provides USB port 2 at the Express Card connector and USB port 3 at the mini PCI Express connector on the bottom side of the PCB.

If some high current USB devices need to be supplied, please connect them to USB port 0 or 1, because they can be sources up to 2A each.

5.10 Mini PCI express

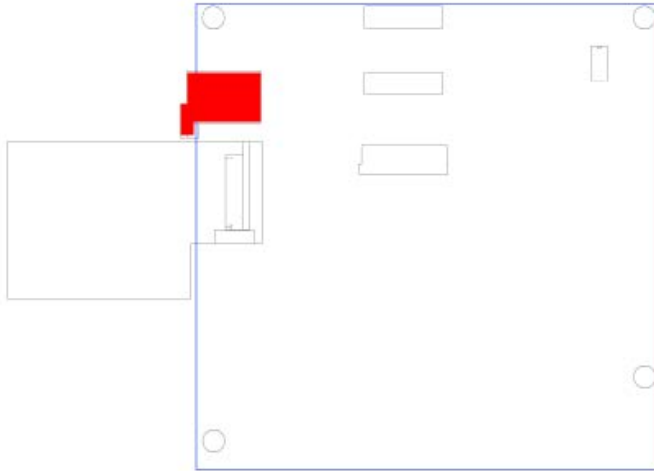
The COMe Reference Carrier Type 6 provides a full functional miniPCIexpress card socket in full size. All signals are equipped: USB, PCIe and the UIM signals are connected to the SIM card socket.



MiniPCIe J90 - Pin	Function	MiniPCIe J90 - Pin	Function
1	WAKE#	2	3,3V
3	Reserved	4	GND
5	Reserved	6	1,5V
7	CLKREQ#	8	UIM_PWR
9	GND	10	UIM_DATA
11	REFCLK-	12	UIM_CLK
13	REFCLK+	14	UIM_RESET
15	GND	16	UIM_VPP
Mechanical Key			
17	Reserved	18	GND
19	Reserved	20	Reserved
21	GND	23	PERST#
23	PERn0	24	+3,3Vaux
25	PERp0	26	GND
27	GND	28	+1,5V
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-
37	Reserved	38	USB_D+
39	Reserved	40	GND
41	Reserved	42	LED_WWAN#
43	Reserved	44	LED_WLAN#
45	Reserved	46	LED_WPAN#
47	Reserved	48	+1,5V
49	Reserved	50	GND
51	Reserved	52	+3,3V

5.11 SIM Card

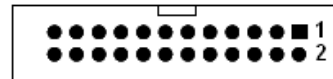
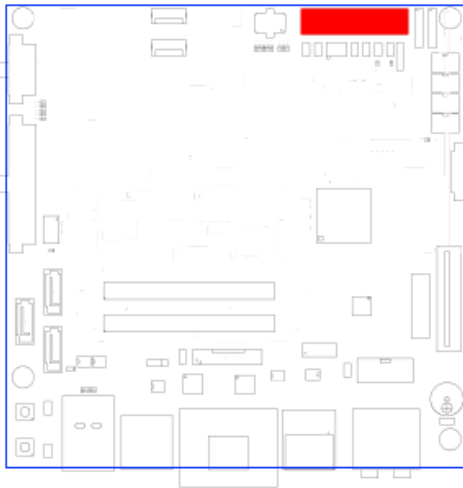
The COMe Reference Carrier Type 6 provides a SIM Card connector to use radio based services on miniPCIexpress connector J90.



J93

5.12 Kontron Feature Connector

The Kontron Feature connector provides additional interfaces such as I2C, SMBus or Power Control Signals. See the table below for detailed pin-out description.



J9

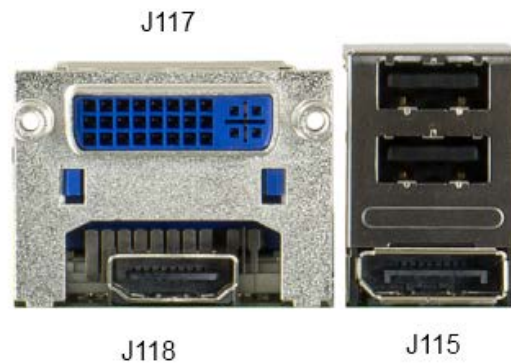
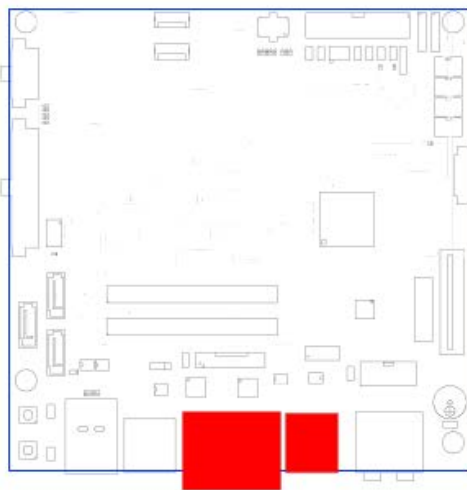
Pin	Signal	Level	Signal Description
1	PWR_+5V	5V power	+5V UL-protected with inductor (600R@100MHz, 1A)
2	GPO2	3.3V-0	General-purpose power management event output
3	BATLOW#	3.3V-I	Battery low input. May be driven low by external circuitry to signal that the system battery is low, or may be used to signal some other external power management event.
4	GPI2	3.3V-I	General-purpose power management event input
5	SYS_RESET#	3.3V-I	This input may be driven low by external circuitry in order to reset the power management logic
6	WDT	3.3V-0	Indicating that a Watchdog Timeout Event has occurred (non buffered module output)
7	LPC_SERIRQ	3.3V-I	Serial interrupt request. This pin is used to support the serial interrupt protocol.
8	-	-	Not connected
9	I2C_DAT	3.3V-IO	Data line of I2C-Bus
10	SMB_ALERT#	3.3V-I	System Management Bus Alert input. May be driven low by SMB devices in order to signal an event on the SM Bus
11	I2C_CLK	3.3V-0	Clock line of I2C-Bus
12	SMB_DAT	3.3V-IO	Clock and data line of SM-Bus.
13	SMB_CLK	3.3V-0	
14	-	-	Not connected
15	WAKE1#	3.3V-I	Low driven general purpose wake-up signal
16	VCC_RTC	3V-I	3V backup cell input. Should be connected to a 3V backup cell for RTC operation and storage register non-volatility in the absence of system power. (VBATT = 2.4 – 3.3V)
17	THRM#	3.3V-I	Input from off-module temperature sensor indicating an over temperature situation
18	GND	GND	Ground
19	PWR_OK	3.3V-I	High active input indicating that power from the power supply is ready. It can also be used as low active reset input signal.
20	GND	GND	Ground
21	PWRBTN#	3.3V-I	Power Button Input. This input is used to support the ACPI Power Button function.
22	GND	GND	Ground
23	ATA_ACT#	3.3V-0	Low active output signal, which indicates activity on IDE interfaces.
24	CB_RESET#	3.3V-0	Low active Reset output from module to carrier board

5.13 DVI-I, HDMI and Displayport

On COMe Reference Carrier Type 6 all three DDI interfaces are available:

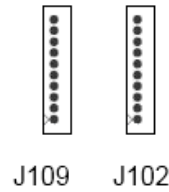
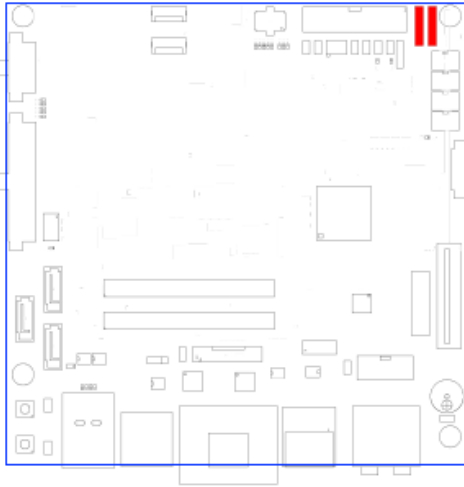
DDI	Usage	Connector
DDI1	DVI	J117
DDI2	Displayport	J115
DDI3	HDMI	J118

J117 additionally offers VGA signals via the analog pins on the DVI-I connector. To use this on standard analog monitors an adapter from DVI-I to VGA is necessary which is available through usual computer equipment suppliers. The VGA DDC lines are not connected, so automatic monitor detection on VGA is not possible.



5.14 Serial Interface

The PICMG COM.0 specification revision 2.0 defines two optional 2-pin serial interfaces on COM Express® connector pins A98/A99 and A101/A102 formerly used for 12V VCC input. SER0 and SER1 can be used as a serial COM port on COMe Reference Carrier Type 6 at connector J109 and J102.

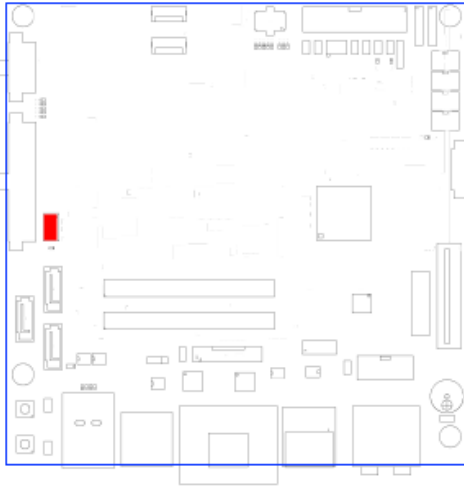


J109 and J102 allow SER0 and SER1 as 2-pin RS232 interface COMA with Kontron Adapter cable [KAB-DSUB9-3](#). Please check the documentation of your module if this interface is supported and how to configure.

Pin	J109 (COMA) / J102 (COMB)
1	n.c.
2	n.c.
3	RX
4	n.c.
5	TX
6	n.c.
7	n.c.
8	n.c.
9	GND
10	+5V

5.15 FAN

The COMe Reference Carrier Type 6 provides one 4-pin PWM FAN connector directly controlled by the module FAN output specified in the COM.0 revision 2.0 specification if supported by the module.



J50

Pin	J50
1	GND
2	+12V
3	Sense
4	Control (PWM)

5.16 SMART Battery

5.16.1 Introduction

The Core of the SBS is the dual Smart Battery System Manager LTC1760. On COMe Reference Carrier Type 6 both battery connections are provided.

Smart Battery Systems have the ability to communicate with the application. Therefore the user gets information about the current state of the battery. The interface for this communication is the System Management Bus (SMBus). Standard Smart Batteries have a specified 5 pin header, connecting to the power lines and additionally this SMBus. This standardization allows using all available kinds of standard Smart Batteries, which also applies to the COMe Reference Carrier Type 6.

A typical SBS consists of a Smart Battery System Manager and a charger, which can communicate with the chipset using the SMBus. If there is no software to control the SBS via SM-bus then the system is able to run in a stand alone mode with reduced functionality, too.

The SBS was designed for the requirements of the COMe Reference Carrier Type 6. Additionally different kinds of Smart Batteries can be used. That means different battery chemistry and cell configurations. But it must be ensured to use standard Smart Batteries, which meet the SM-Bus standard.

Note: Please ensure that the input voltage of the COMe Reference Carrier Type 6 is higher than the charging voltage of the connected SMART battery. Otherwise the battery can not be charged.

5.16.2 Possible Smart Batteries

The voltage of batteries must be within the voltage range of the carrier board. Therefore the best choice is a 3 cell series Li-Ion or LiPo battery with 10.8V. Also 4 cell series batteries can be used, but then the input voltage of the carrier board must exceed the charging voltage of the battery.

Battery Manufacturer:

http://www.moltechpower.co.uk/smart_standard_range.htm

e.g. NF2040, NL2044

http://www.inspired-energy.com/Standard_Products/standard_products.htm

http://www.emergingpower.com/oem/oem_standardpacks.htm

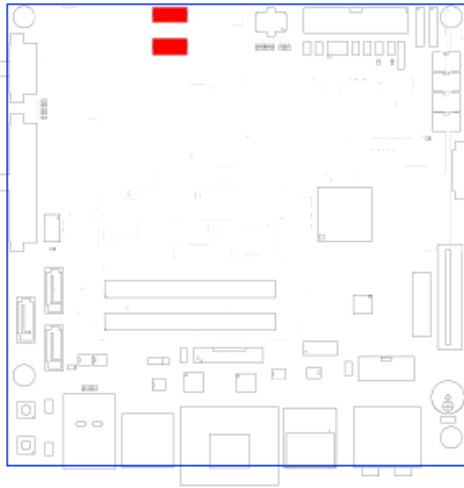
5.16.3 Smart Battery System Manager

The LTC1760 SBS Manager is a highly integrated level 3 battery charger and selector intended for products using dual smart batteries. Three SMBus interfaces allow the LTC1760 to serve to the internal voltage and currents measured by the batteries while allowing a SMBus Host to monitor either battery's status. Charging accuracy is determined by the battery's internal voltage and current measurement, typically better than $\pm 0,2\%$.

The LTC1760 automatically switches between power sources in less than 10 μ s to prevent power interruption upon battery or wall adapter removal. It implements all elements of a version 1.1 “Smart Battery System Manager” except for the generation of composite battery information. An internal multiplexer cleanly switches the SMBus Host to the attached Smart Battery without generating partial messages to the battery or SMBus host. The Thermistor on the battery is automatically monitored for temperature and disconnection information (SafetySignal).

Hardware programmable limits for maximum charge current and voltage improve the safety of the complete system. For more information see datasheet of LTC1760.

5.16.4 Smart Battery Connector



A cable adapter for SMART Batteries to J110 and J111 is available with following data:

96086-0000-00-0 KAB-SMART-BAT

6 Battery Information

English:

CAUTION: 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.

Deutsch:

VORSICHT: Explosionsgefahr bei unsachgemäßem Austausch der Batterie. Ersatz nur durch denselben oder einen vom Hersteller empfohlenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.

French:

ATTENTION: Risque d'explosion avec l'échange inadéquat de la batterie. Remplacement seulement par le même ou un type équivalent recommandé par le producteur. L'évacuation des batteries usagées conformément à des indications du fabricant.

Danish:

ADVARSEL: Lithiumbatteri – Eksplosionsfare ved fejlagtig Håndtering. Udskiftning må kun ske med batteri af samme fabrikant og type. Lever det brugte batteri tilbage til leverandøren.

Finnish:

VAROITUS: Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaanlaltevalmistajan suosittelmaan tyyppiln. Havita kaytetty paristo valmistajan ohjeiden mukaisesti.

Spanish:

Precaución: Peligro de explosión si la batería se sustituye incorrectamente. Sustituya solamente por el mismo o tipo equivalente recomendado por el fabricante. Disponga las baterías usadas según las instrucciones del fabricante.

Note: The battery of this product is not considered to be accessible by the end user. Therefore the safety instructions are only given in English, German, French, Danish, Finish and Spanish language.

If the battery of this product however is accessible by the end user, it is in the responsibility of the Kontron customer to give the corresponding safety instructions in the required language(s).

7 Module Single Supply and Wide Range

The COMe Reference Carrier Type 6 is supplied via a single wide range supply between 8.5V and 18V. Please ensure that also your module supports wide range input of that range.

Please check the documentation of your product if a wide range voltage input is supported. Kontron Computer-on-Modules usually supports:

- » COM Express® modules in mini size form factor:
4.75V to 20V
- » COM Express® modules in compact and basic size form factor:
8.5V to 18V

8 Security Advice

To protect the external power lines to peripheral devices the customer has to take care about:

- The wires to the external device have the right diameter to withstand the max. available current
- The housing of the external device fulfils the fire protection requirements of IEC/EN 60950.

9 Document Revision History

Revision	Date	Edited by	Changes
0.10_prelim	30.05.12	UMA	Initial Release
0.20_prelim	05.06.12	UMA	Corrected errors and typos
1.0 final	18.07.12	UMA	Corrected smart battery description of possible batteries
1.1	17.03.16	BEV	Corrected hyperlink to KAB-DSUB9-3

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