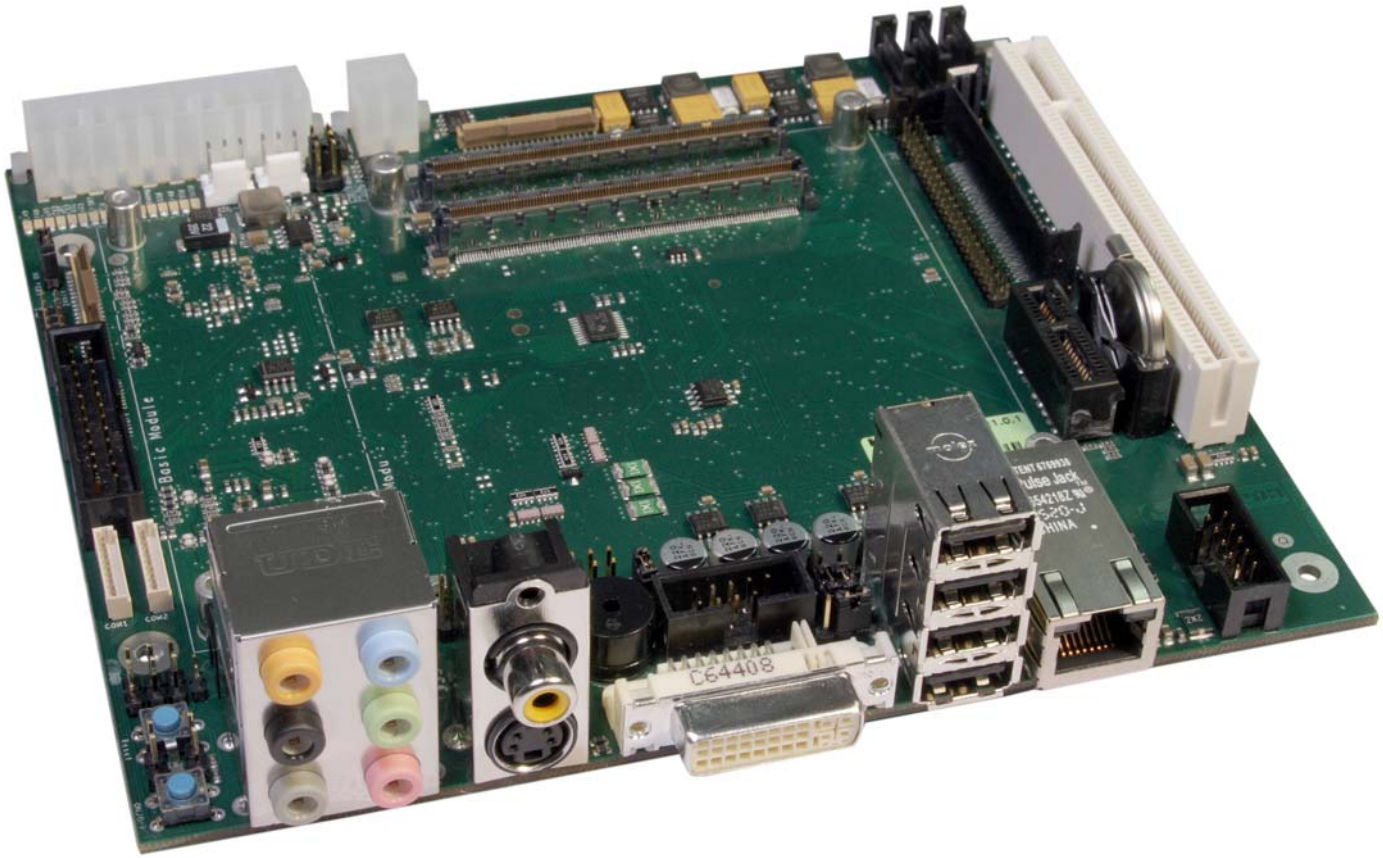
Kontron User's Guide



ETXexpress miniBaseboard

Document Revision 1.13

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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

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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

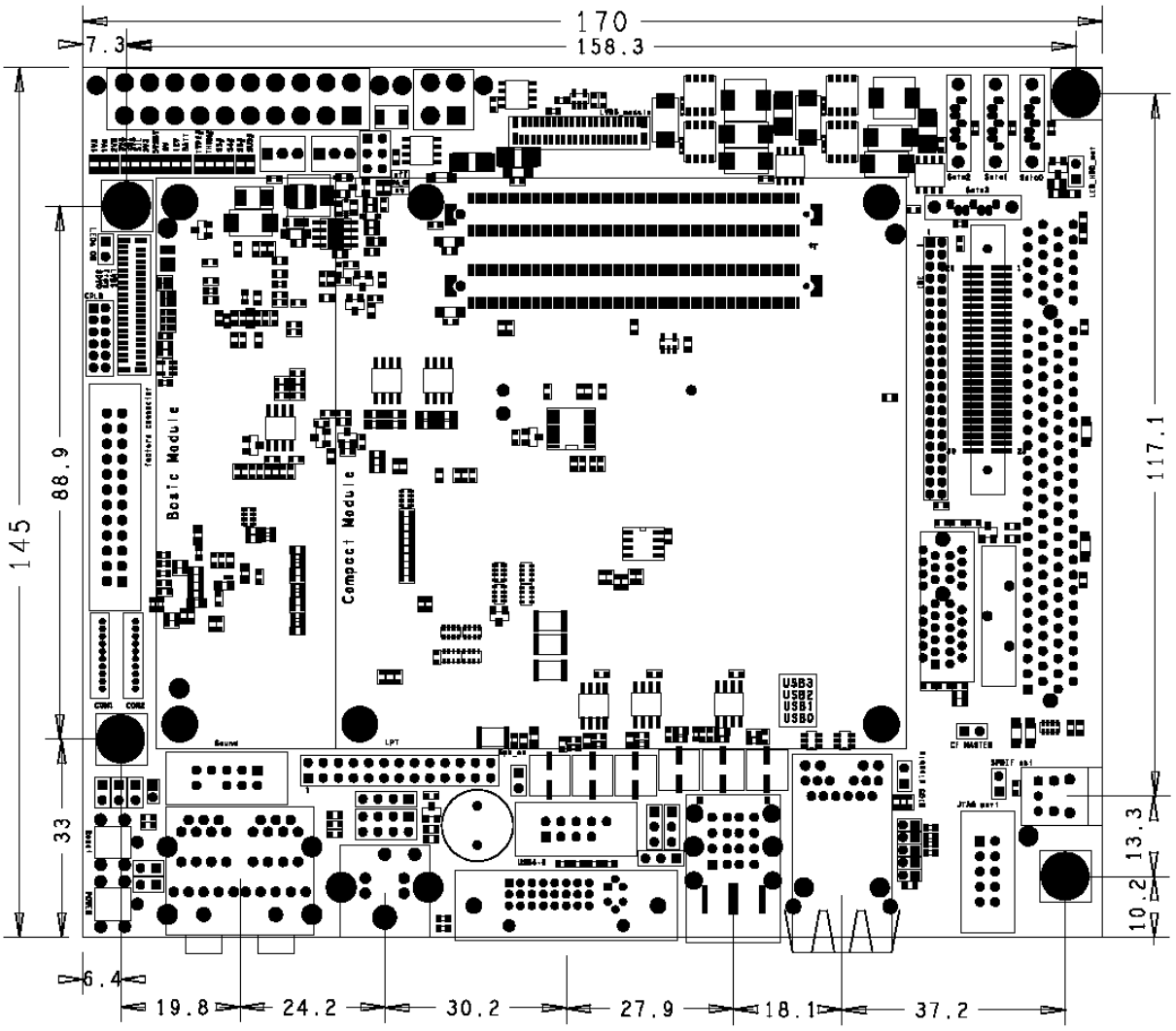
Technicians and engineers from Kontron Embedded Modules GmbH and/or its subsidiaries are available for technical support. We are committed to making our product easy to use and will help you use our products in your systems.

Please consult our Web site at http://www.kontron.com/support for the latest product documentation, utilities, drivers and support contacts. In any case you can always contact your board supplier for technical support.

2 Specifications

2.1 Mechanical Specifications

The ETXexpress miniBaseboard is 170mm x 145mm in size and the height is 41mm. See more detailed mechanical specifications in the figure below:



2.2 Environmental Specifications

2.2.1 Temperature

Operating:

- Ambient temperature: 0 to +60 °C
- Non-operating: -30 to +85 °C

Storage:

- Ambient temperature: -25 to +85 °C

Note: The maximum operating temperature is the maximum measurable temperature on any spot on a baseboards' surface. You must maintain the temperature according to the above specification.

2.2.2 Humidity

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

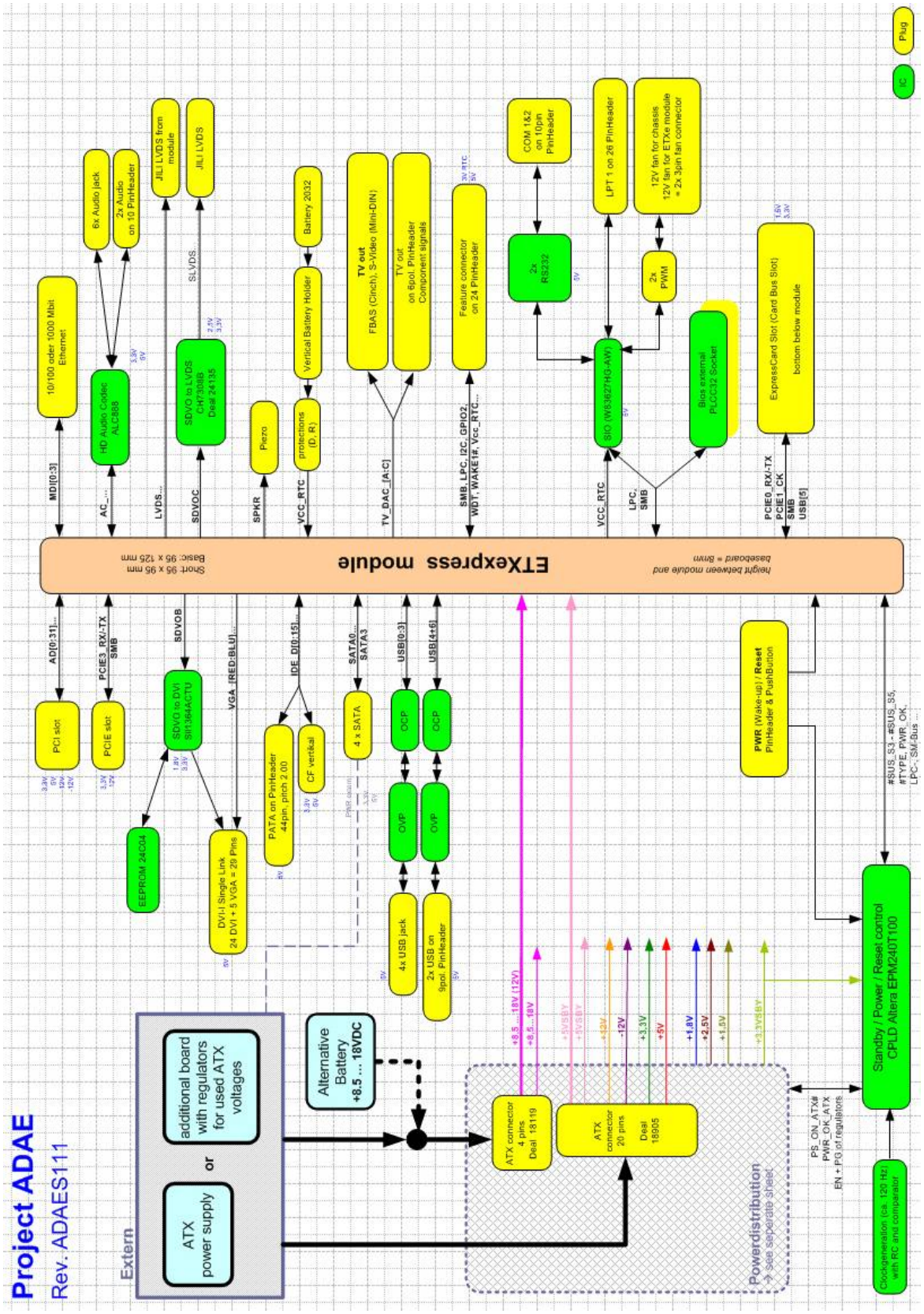
3 Short description

The Kontron ETXexpress miniBaseboard is a COM Express evaluation backplane compatible to COM Express Type 2 modules in basic and compact module size.

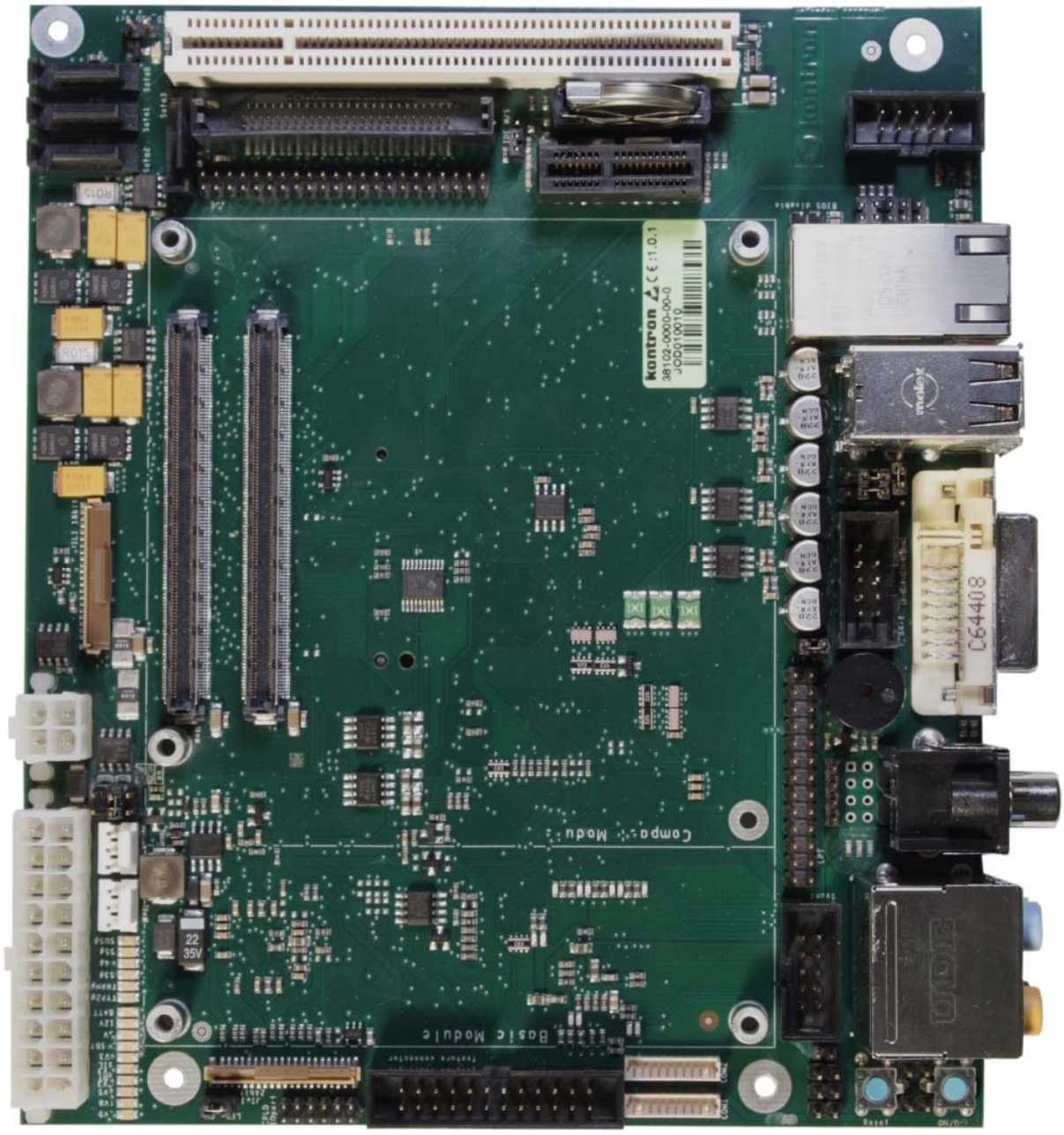
Product specifications:

- Compatible to 10/100Mbit and GBit-Ethernet Modules
- ATX EPS and Single Supply support
- 1 PCI Slot
- 1 PCIexpress x1 Slot
- Express Card Slot
- 4 x SATA Ports
- IDE (44pin) and Compact Flash Socket
- LPT and 2 COM Ports
- 4 USB 2.0/1.1 Ports + 2 onboard USB pin header
- Combined VGA/DVI and 2 x LVDS output
- TV-Out: S-Video, component and composite
- Onboard HD Audio Codec Realtek ALC888
- Analog 7.1 Audio, optical and digital S/PDIF out + front Audio pin header
- HW Monitor with 2 FAN and 3 Thermal DIODE connectors
- Kontron Feature Connector
- 2nd Onboard Backup BIOS
- Front Panel Connector (HDD Act, Reset SW, Power SW ...)

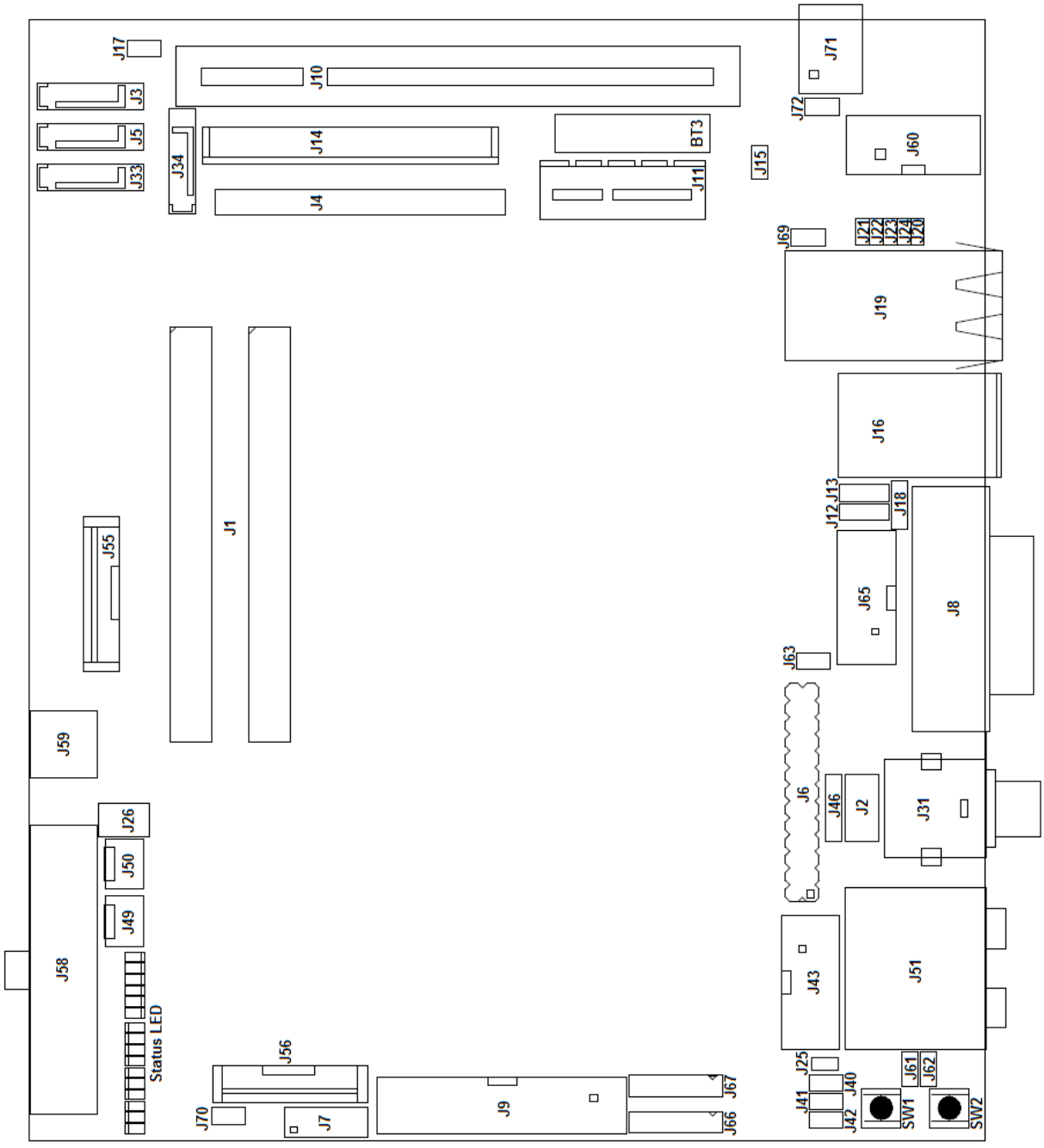
4 Block Diagram



5 Connector locations



(Layout L110)



Summary of all available interfaces:

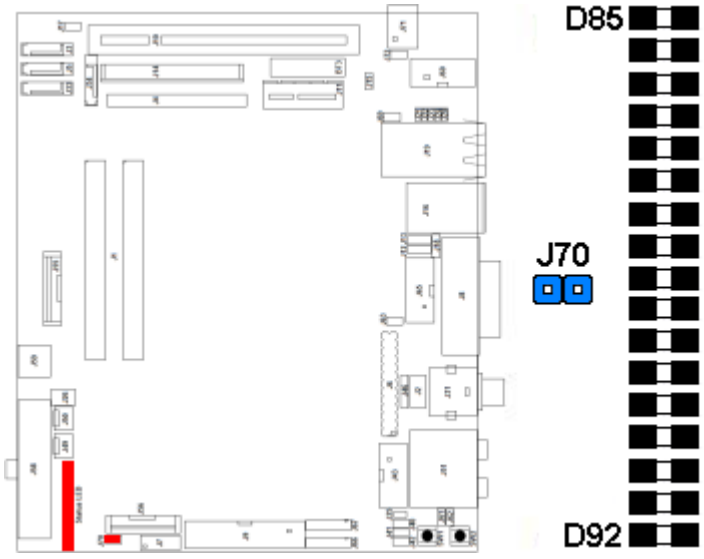
Connector	Description
BT3	RTC Battery
J1	COMexpress Connector
J2	Component Video
J3	SATA0
J4	Primary IDE
J5	SATA1
J6	LPT
J7	I/O Port (for internal use only)
J8	DVI-I Connector

Connector	Description
J9	Kontron Feature Connector
J10	PCI Connector
J11	PCIexpress x1
J12	VGA/DVI I2C Data Selector
J13	VGA/DVI I2C Clock Selector
J14	Compact Flash Socket
J15	CF Card Master/Single
J16	USB Ports 0-3
J17	HDD Activity LED
J18	VGA/DVI DDC Power Selector
J19	RJ-45 LAN Port
J20	100MBit / GBit Ethernet Switch
J21	
J22	
J23	
J24	
J25	Onboard SIO Adress Switch
J26	ATX_PS_ON Override Jumper
J31	TV-Out Composite/S-Video
J33	SATA2
J34	SATA3
J40	Connector for external Temp Sensor 1
J41	Connector for external Temp Sensor 2
J42	Connector for external Temp Sensor 3
J43	Front Panel Audio Connector
J46	Digital Microphone In
J49	FAN Connector 1
J50	FAN Connector 2
J51	7.1 Analog HD Audio Connector
J55	JILI40 LVDS 1
J56	JILI40 LVDS 2
J57	Express Card Slot (on PCB's back side)
J58	ATX Main Power Connector
J59	ATX_12V Power Connector
J60	CPLD JTAG connector
J61	Front Panel Reset Switch
J62	Front Panel Power Swicth
J63	Enable/Disable onboard Speaker
J65	USB4 & USB6 Pin Header
J66	COM1
J67	COM2
J69	Enable/Disable Module BIOS
J70	Enable/Disable Status LEDs
J71	Optical S/PDIF out connector (Toslink)
J72	electrical S/PDIF out Pin header
SW1	Reset Button
SW2	Power Button

6 Connector and feature description

6.1 Status LEDs

The onboard status and voltage indicator LEDs will show you the actual power state of the module and if all voltages are working correctly.

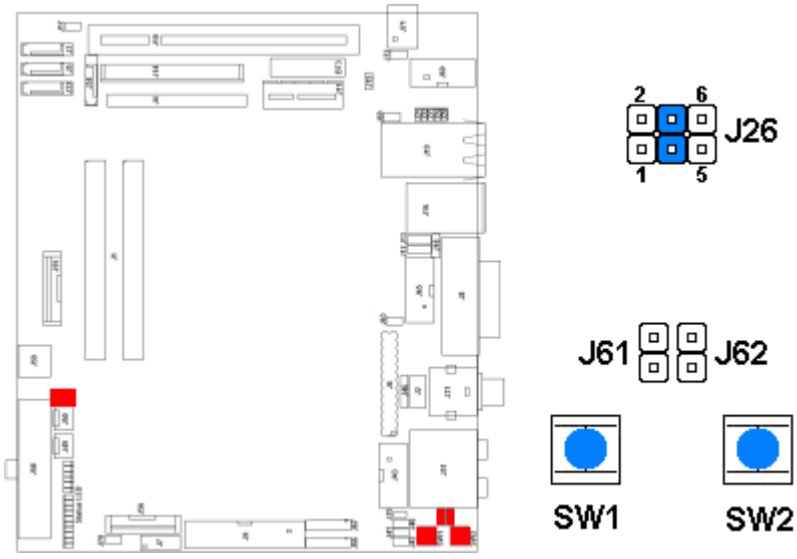


LED	Description
D85	Suspend
D84	S5 - Off State
D83	S4 – Suspend to Disk
D82	S3 – Suspend to RAM
D104	THRM – Temperature Alarm
D97	Module Type2 not OK
D96	12V / Battery (ATX_12V)
D86	12V Voltage
D88	5V Voltage
D87	5V Standby Voltage
D89	3.3V Voltage
D90	3.3V Sil Voltage
D94	3.3V No ATX / CPLD Voltage
D93	2.5V Voltage
D91	1.8V Voltage
D92	1.5V Voltage

To reduce power consumption for example in battery driven systems open Jumper J70 to disable all status LEDs.

6.2 Power, Reset & PS_ON (SW1, SW2, J61, J62, J26)

To configure the SW2 power button behavior refer to the BIOS section of the connected module.



PS_ON override J26

Jumper	Function
1 - 2	OFF
3 - 4	PS_ON
5 - 6	ON

Reset & Power Button

Connector	Function
J61	Reset
SW1	
J62	Power
SW2	

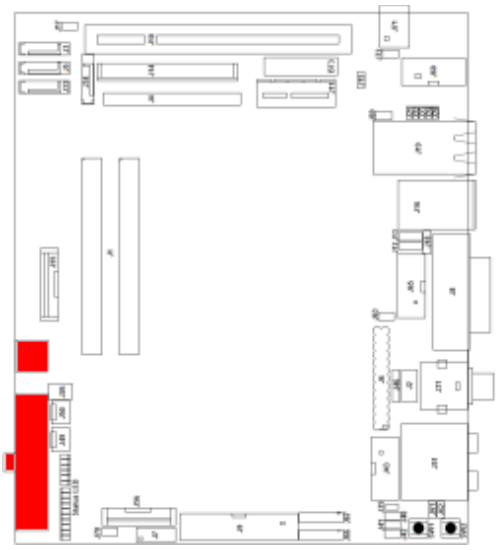
J62 (Power) and J61 (Reset) are pin header to connect a switch on the chassis front panel. With the manual PS_ON override Jumper J26 you are able to switch the Power Supply on or off manually.

6.3 COM Express Connector J1

The standard COM Express connector follows the COM Express specifications. Please refer to the specifications or module manuals on http://www.kontron.com for more details.

6.4 Power Connector J58, J59

Connect the ATX and the ATX_12V power supply cable to the power connector in the correct orientation. The 12V power connector mainly supplies power to the module. If the 12V power connector is not connected, the system will not start. For Single Supply without an ATX Power Supply please refer to chapter Single Supply (without ATX).



Pin	Def
1	GND
2	GND
3	+12VDC
4	+12VDC

Pin	Def	Pin	Def
1	+3.3VDC	11	+3.3VDC
2	+3.3VDC	12	-12VDC
3	GND	13	GND
4	+5VDC	14	PS_ON
5	GND	15	GND
6	+5VDC	16	GND
7	GND	17	GND
8	PWR_OK	18	-5VDC
9	+5VSB	19	+5VDC
10	+12VDC	20	+5VDC

6.5 SATA connector J3, J5, J33, J34

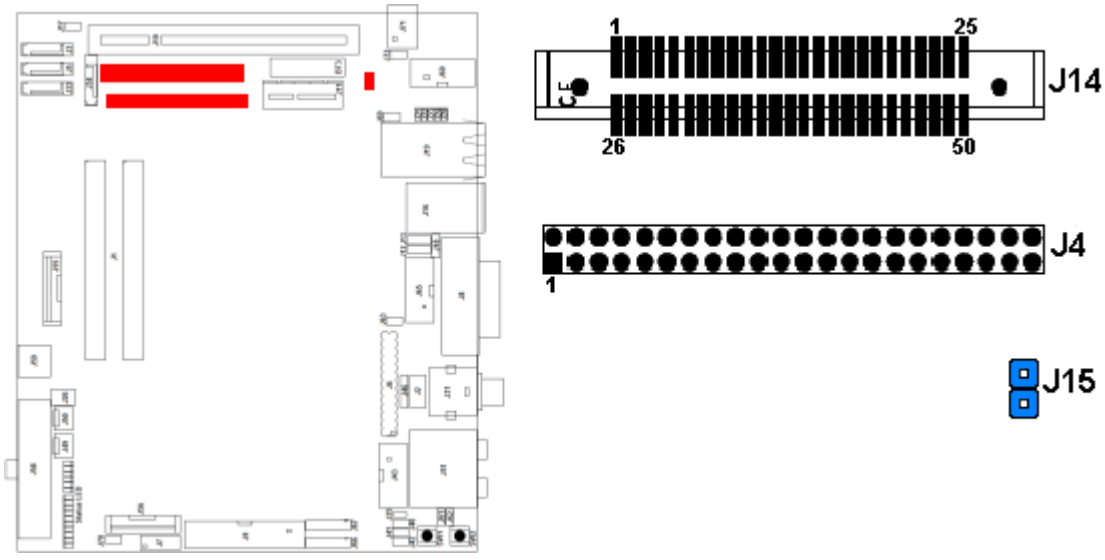
The COM Express specification provides 4 SATA channels maximum. If all 4 SATA ports can be used depends on the module specification.

SATA Pin	Signal
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

Connector	SATA Port
J3	SATA0
J5	SATA1
J33	SATA2
J34	SATA3

6.6 IDE and Compact Flash Connector J4, J14, J15

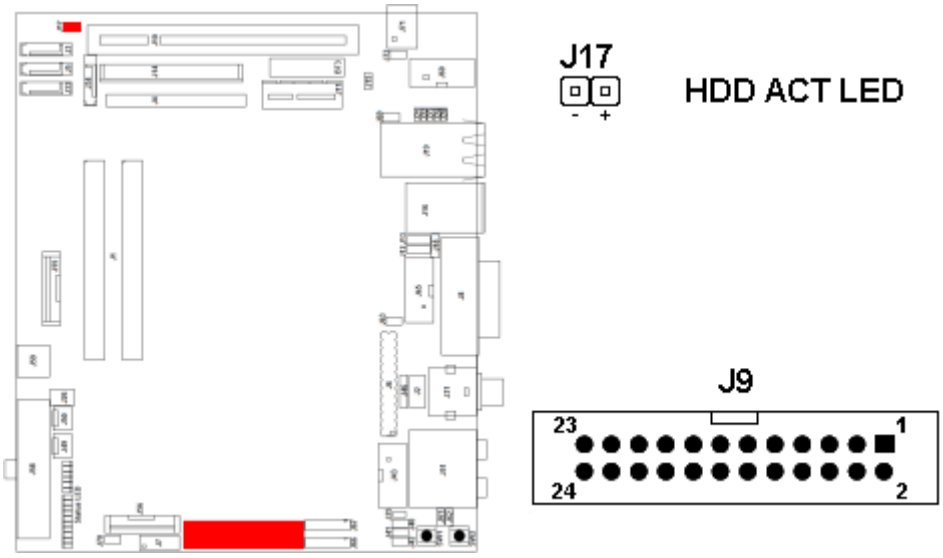
The primary 44pin IDE connector J4 supports up to two IDE devices such as optical drives and hard drives if jumper J15 is open. Locate the red marked line 1 of your IDE cable to connect with pin 1 of the IDE pin header. Close jumper J15 to enable the CF Card Socket J14 as Master or Single drive. An optional second IDE device must be configured as Slave on the IDE connector if CF is enabled.



Compact Flash Socket pin out

Pin	CF Socket Signal	Pin	CF Socket Signal
1	GND	26	n.c.
2	D03	27	D11
3	D04	28	D12
4	D05	29	D13
5	D05	30	D14
6	D07	31	D15
7	#CS0	32	#CS1
8	GND	33	GND
9	#ATA_SEL	34	#IOR
10	GND	35	#IOW
11	GND	36	#WE
12	GND	37	INTRQ
13	VCC +5V	38	VCC +5V
14	GND	39	#CSEL
15	GND	40	n.c.
16	GND	41	#RESET
17	GND	42	IORDY
18	A02	43	#INPACK
19	A01	44	#REG
20	A00	45	#DASP
21	D00	46	#PDIAG
22	D01	47	D08
23	D02	48	D09
24	n.c.	49	D10
25	n.c.	50	GND

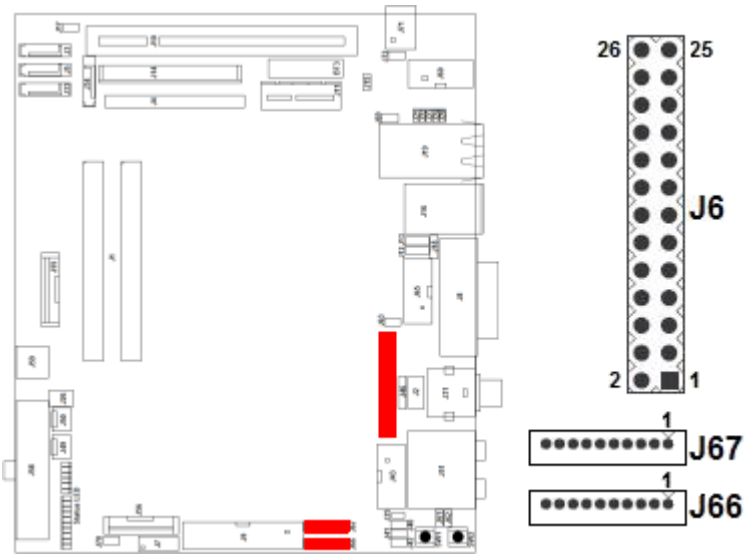
6.7 Feature Connector J9



Pin	Signal Description		
1	PWR_+5V	5V power	+5V UL-protected with inductor (600R@100MHz, 1A)
2	GPO2	3.3V-O	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-O	Indicating that a Watchdog Timeout Event has occurred
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-O	Clock line of I2C-Bus
12	SMB_DAT	3.3V-IO	Clock and data line of SM-Bus.
13	SMB_CLK	3.3V-O	
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-O	Low active output signal, which indicates activity on IDE interfaces.
24	#CB_RESET	3.3V-O	Low active Reset output from module to carrier board

6.8 Parallel and Serial Ports J6, J66, J67

The ETXexpress miniBaseboard includes an external Super I/O Controller Winbond W83627HFJ with a standard parallel port J6 and two serial ports COM1 (J66) and COM2 (J67).



For serial DSUB connections use the Kontron Adapter KAB-DSUB9-3 http://emea.kontron.com/index.php?id=226&cat=56&productid=322

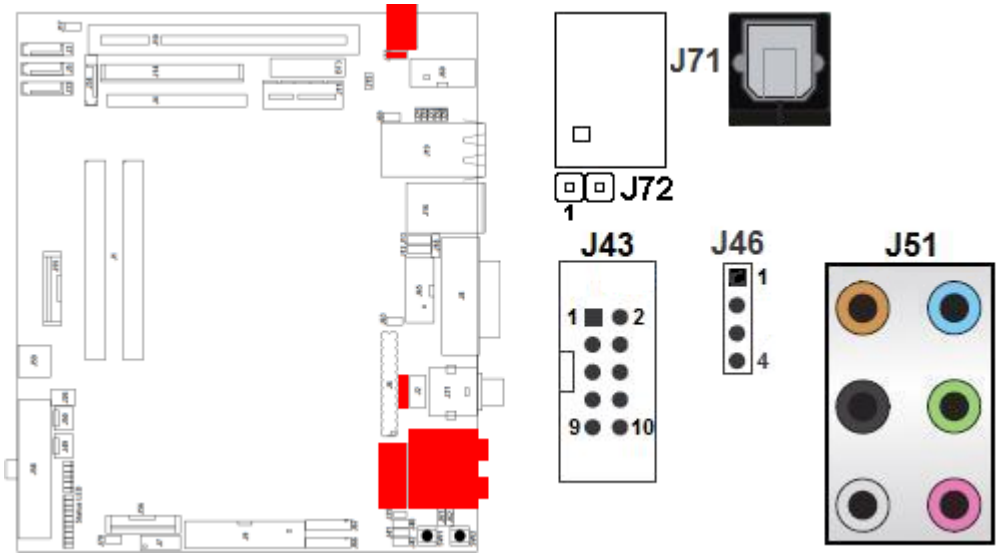
LPT and COM Port pin out

Pin	LPT	COM1/COM2	Pin	LPT	COM1/COM2
1	#STB	DCD	2	#AFD	DSR
3	PD0	RXD	4	#ERROR	RTS
5	PD1	TXD	6	#INIT	CTS
7	PD2	DTR	8	#SLCTIN	RI
9	PD3	GND	10	GND	NC
11	PD4		12	GND	
13	PD5		14	GND	
15	PD6		16	GND	
17	PD7		18	GND	
19	#ACK		20	GND	
21	BUSY		22	GND	
23	PE		24	GND	
25	SLCT		26	PWR_+5V	

Note: To use the legacy ports like COM and LPT a module with legacy BIOS is necessary to support the onboard Winbond Super I/O

6.9 High Definition Audio J43, J46, J51, J71

The miniETXexpress Baseboard includes a Realtek ALC888 High Definition Audio Codec which supports up to 7.1-channel speaker configuration, optical S/PDIF out and digital microphone input.



The optical Toslink S/PDIF Connector (J71), the coaxial S/PDIF Connector (J72) and the Front Panel Audio Connector J43 provides digital audio out. J46 is used for digital microphone connection.

Pin	J43 – HD	J46	J72
1	MIC2-L	DMIC-CLK	SPDIF_OUT
2	GND	DMIC-DATA	GND
3	MIC2-R (MIC Power)	PWR_3.3V	-
4	PRESENCE#	GND	-
5	LINE2-R (LineOut-R)	-	-
6	MIC2-JD	-	-
7	SENSE	-	-
8	Key Pin	-	-
9	Line2-L (LineOut-L)	-	-
10	LINE2-JD	-	-

Speaker Configuration

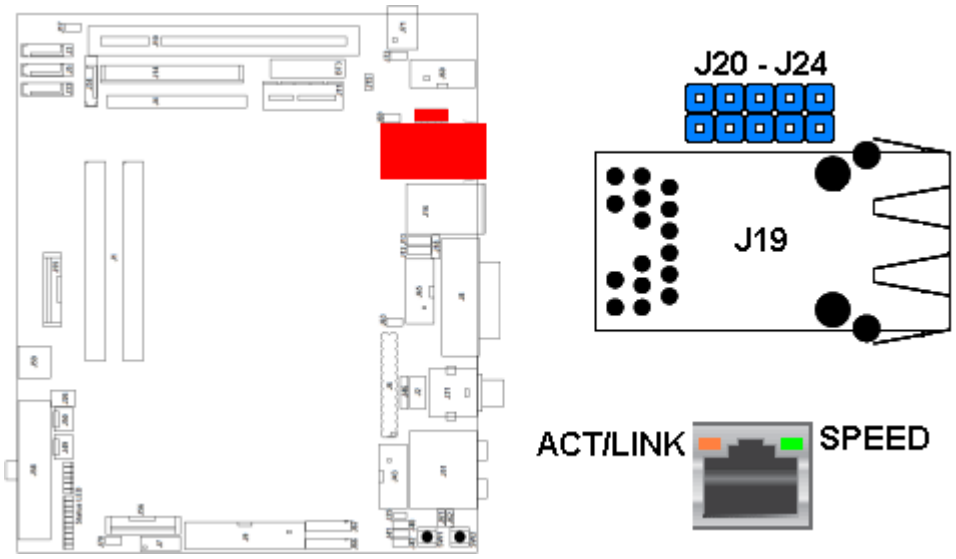
J51	2-channel	4-channel	6-channel	8-channel
Orange	-	-	Center/Subwoofer	Center/Subwoofer
Black	-	Rear Speaker	Side Speaker	Rear Speaker Out
Gray	-	-	-	Side Speaker Out
Blue	Line In	Line In	Line In	Line In
Green	Line Out	Front Speaker	Front Speaker	Front Speaker
Pink	Mic In	Mic In	Mic In	Mic In

Note1: In addition to the default speaker settings, the analogue 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.

Note2: Audio is only working in combination with HD Audio compatible COM Express Modules.

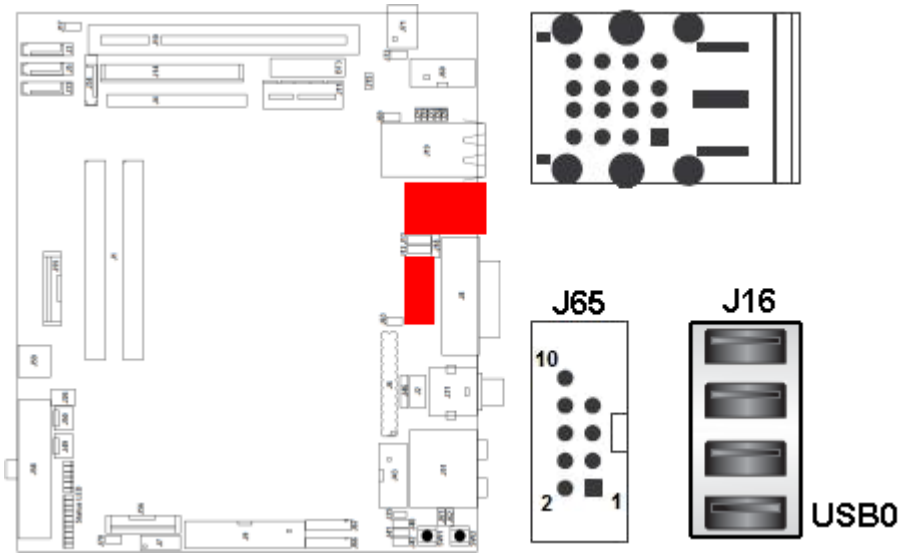
6.10 Ethernet J19 and configuration Jumper J20-24

The Ethernet Port must be configured according to the modules specifications. For Gigabit Ethernet modules close J20 – J24 (default). For a module with ONLY 10/100MBit connection open all Jumpers.



6.11 USB Ports J16, J65

COM Express defines a maximum of 8 USB Ports over module Type 2 connection. On ETXexpress miniBaseboard 4 USB Ports (USB0-USB3) are provided via rear panel connector (J16) and two (USB4 & USB6) ports via onboard pin header (J65). USB Port 5 is used for Express Card.



J65 Pin	Signal
1	VCC USB4
3	USB4-
5	USB4+
7	GND USB4
9	Key pin
2	VCC USB6
4	USB6-
6	USB6+
8	GND USB6
10	n.c.

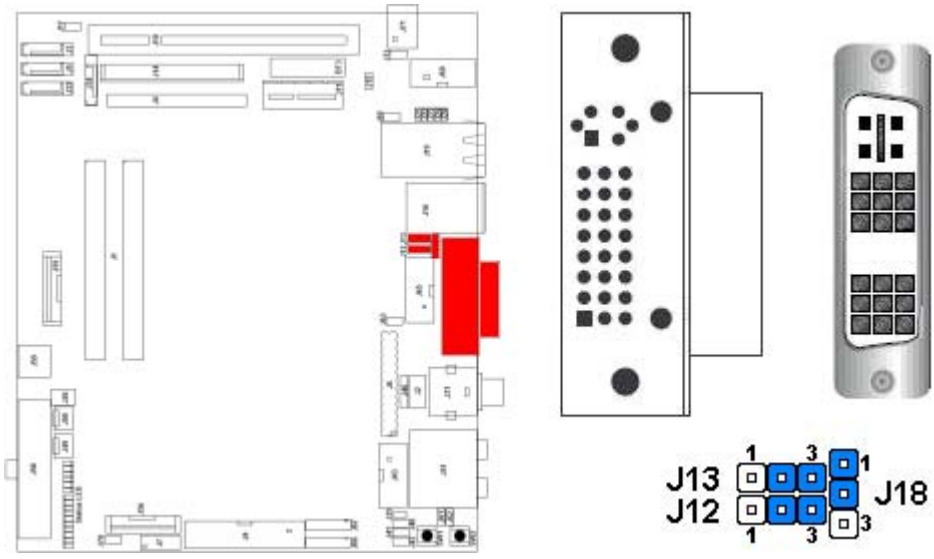
Note: If Express Card USB function and USB Port 6 can be used depends on the modules specification. For the ExpressCard USB function a module with at least 6 USB ports is necessary. A module with 8 USB Ports will support all USB features.

6.12 PCI and PCIexpress J10, J11

The miniETXexpress Baseboard provides one PCIexpress x1 slot (J11) connected to modules PCIexpress Lane 3 and a standard PCI Slot. Please refer to the modules manual for more details.

6.13 DVI and VGA Connector J8

To connect a standard DVI or VGA Monitor use the combined DVI-I Single Link interface J8. An analog CRT monitor can be used via an optional standard DVI-VGA Adapter. The DVI Interface is realized with a Silicon Image SDVO to DVI Transmitter SIL1364 which uses the SDVO-B Channel from the COM Express Module.



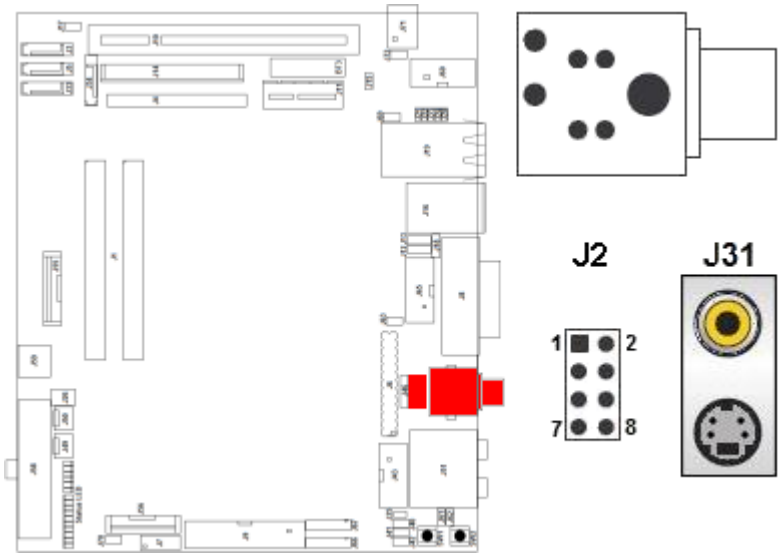
The standard Jumper configuration (J12 and J13) is for DVI DDC Data usage with 5V Bus Level Voltage (see picture above). To enable VGA I2C connection short pin 1 and 2 of J12 and J13. To change the Voltage Level on DDC I2C Bus to 3.3V short Pin 2 and 3 of Jumper J18.

Jumper Configuration

Pin	J12	J13	J18
1	VGA I2C Data	VGA I2C Clock	PWR_+5V
2	DDC Data	DDC Clock	DDC Clock Pull Up
3	DVI DDC Data	DVI DDC Clock	PWR_+3.3V

6.14 TV-Out J2, J31

The ETXexpress miniBaseboard provides three possible TV-Out connections. Composite Video (Yellow Cinch) and S-Video out is available on the rear panel connector J31. Component TV-Out is available via pin header J2. See the tables below for configuration details. For more details about TV-Out connection refer to the modules manual.



J2 - Component TV Out

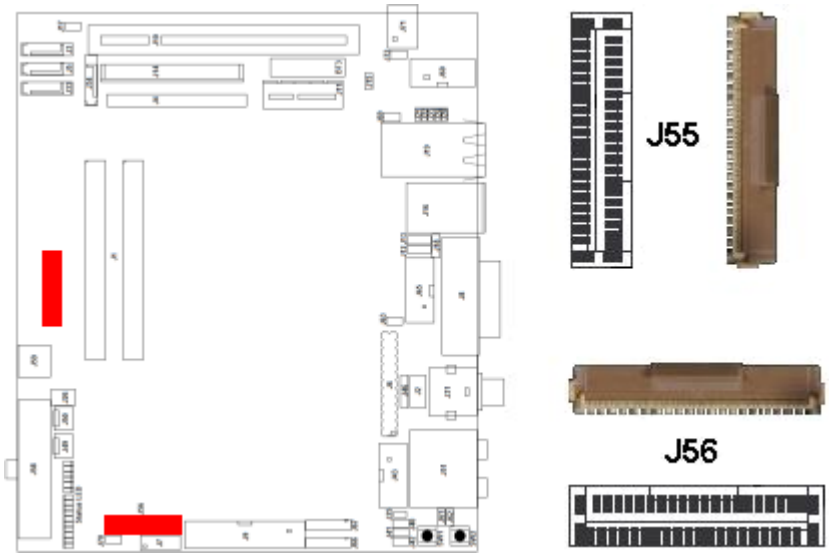
Pin	J2 Functi.
1	TV_DAC_A
2	GNDA
3	TV_DAC_B
4	GNDB
5	TV_DAC_C
6	GNDC
7	GNDA
8	NC

TV-Out configuration

Pin	Composite Video	S-Video	Component Video
TV_DAC_A	CVBS (composite)	-	Pb (Chrominance)
TV_DAC_B	-	Y (Luminance)	Luminance
TV_DAC_C	-	C (Chrominance)	Pr (Chrominance)

6.15 Flat Panel Connector J55, J56

The first LVDS display connection J55 is provided by the COM Express module. The second LVDS connection is realized with a Chrontel CH7308B SDVOtoLVDS Transmitter which uses the modules SDVO-C channel.

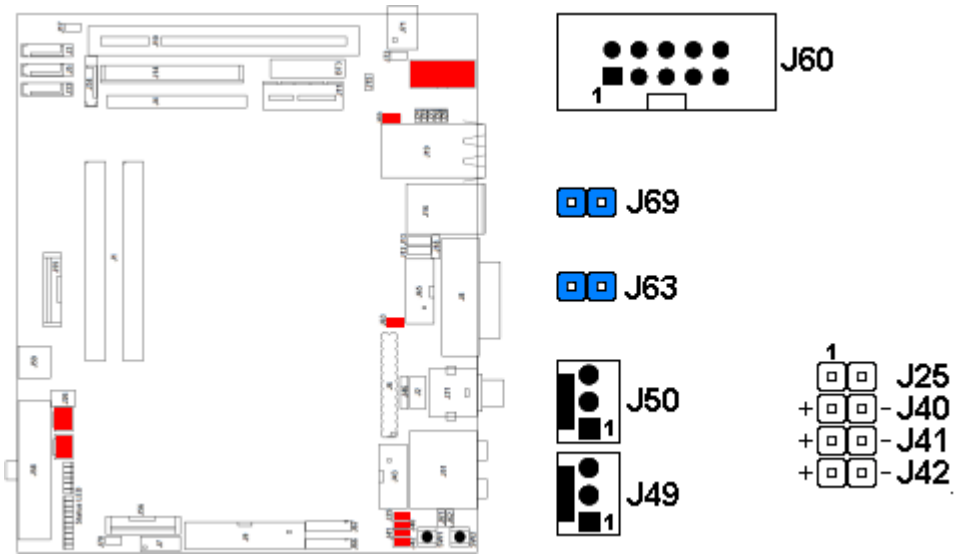


J55 and J56 LVDS pin out

Pin	LVDS Signal	Pin	LVDS Signal
1	NC	21	LCDDO13
2	LCDDO0	22	DETECT# (GND)
3	LCDDO1	23	LCDDO14
4	ENAVDD	24	LCDDO15
5	LCDDO2	25	GND
6	LCDDO3	26	LCDDO16
7	NC	27	LCDDO17
8	LCDDO4	28	GND
9	LCDDO5	29	LCDDO18
10	GND	30	LCDDO19
11	LCDDO6	31	+5V
12	LCDDO7	32	+5V
13	GND	33	+5V
14	LCDDO8	34	+5V
15	LCDDO9	35	BLON#
16	JILI_DAT	36	GND
17	LCDDO10	37	GND
18	LCDDO11	38	+12V
19	JILI_CLK	39	+12V
20	LCDDO12	40	+12V

6.16 General Connectors

The ETXexpress miniBaseboard provides an onboard backup BIOS and a CPLD. To enable booting from this external BIOS short Jumper J69. To access the onboard CPLD via JTAG use J60.



With J40, J41 and J42 up to 3 external Temp Sensors can be connected to the onboard Winbond Super I/O Controller. Open J63 to disable the onboard speaker.

Fan Connector J49, J50

Pin	Signal
1	Sense
2	+12V
3	GND

Backup BIOS Disable J69

J69	Enable / Flash
Closed	Backup BIOS
Open	Module BIOS

SIO Address Switch J25

J25	Onboard SIO Adress
Closed	4Eh
Open	2Eh

CPLD JTAG Connector J60

Pin	Signal
1	TCK
2	GND
3	TDO
4	+3,3V
5	TMS
6	NC
7	NC
8	NC
9	TDI
10	GND

7 Express Card

The onboard Express Card is connected to PCIexpress Lane0 and to USB Port5. To use the Express Card USB functions a Module with at least 6 USB Ports is necessary.

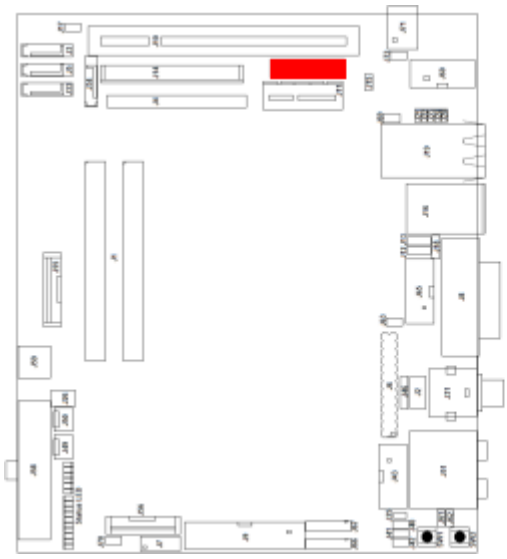
The maximum continuous Card Power is

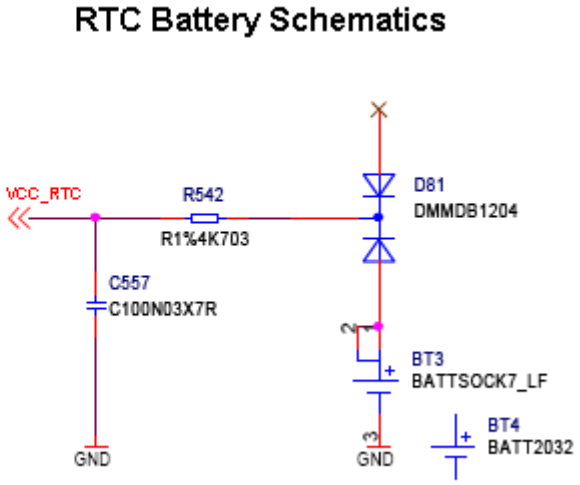
- 1,3A on 3,3V
- 275mA on Aux Power
- 650mA on 1,5V

Express Card pin out

Pin	Signal	Pin	Signal
1	GND	14	3.3VS_1
2	USB_D-	15	3.3VS_0
3	USB_D+	16	CLKREQ#
4	CPUSB#	17	CPPE#
5	NC	18	REFCLK-
6	NC	19	REFCLK+
7	SMB_CLK	20	GND
8	SMB_DATA	21	PERN0
9	1.5V_2	22	PERP0
10	1.5V_1	23	GND_1
11	WAKE#	24	PETN0
12	3.3VAUX	25	PETP0
13	PERST#	26	GND_0

8 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. Udskifting må kun ske med batteri af samme fabrikant og type. Lever det brugte batteri tilbage til leverand□ren.***

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).*

9 Limitations and installation hints

9.1 Known hardware restrictions

Following restrictions are known in specified hardware revision.

PCB Layout L110 (CE 1.x.x, EFT Samples only):

- No external LPC BIOS socket is available
- No optical S/PDIF connector J71
- Just 2 SATA Ports are working
- FAN1 is always on 12V level (no PWM)
- LPT Port is not available
- Keyboard Reset is not working
- USB pin header J65 has no standard pin assignment (USB+ & USB- crossed)

PCB Layout L111 (CE 2.2.0):

- The orange and black analog audio jacks of J51 are exchanged
- Some 2.5'' HDD on Primary IDE connector J4 are not working correctly when using in UDMA5 mode

9.2 Installation hints

Please consider following information and installation hints:

Display connection during installation:

Possible module BIOS VGA Output Settings:

CRT: enables the analog part of DVI connector J8

LFP: enables the first LVDS connector J55

EFP: enables the SDVO-B part and the digital part of DVI connector J8

The default display output in BIOS VGA settings for most ETXexpress modules is set to "CRT and LFP". In this case it's necessary to use a CRT monitor with a DVI to CRT adapter on J8 or to use a LVDS panel on J55/J56. If you change the BIOS settings to "LFP and EFP" or "CRT and EFP" to use a DVI panel, it's possible that windows disables the DVI port during installation and you can't finish installation.

We recommend using a standard CRT Monitor via standard DVI-CRT adapter during installation to avoid problems. After installation all devices can be activated in the driver options.

10 Single Supply (without ATX)

The ETXexpress miniBaseboard is able to be supplied by just one voltage. This voltage have to be in the range of 8.5V to 18V. This supply has to be connected at the 4pin ATX_12V power connector J59.

To use this feature it is as well necessary to have a module supporting the wide range input as some small changes of the assembly (see below: Assembly Instructions to noATX supply).

Are these constraints fulfilled, the onboard regulators begin to do the supply instead of the ATX power supply. But some restrictions have to be cared about in this single supply mode.

The onboard power regulators for 3.3V and 5V are limited to 6A each. After supplying the onboard devices, there are **4.8A at 3.3V and 5.9A at 5V** remaining.

Therefore the total current of the used external devices (PCI, PCIexpress, USB, LVDS panel, IDE/CF, RS232/LPT) must not exceed these limits in single supply mode.

Additionally no PCI Card can be used, which needs -12V supply.

If a wide range power supply is used, the PCI and PCIexpress slots are not supplied with 12V. A LVDS Display has to be supplied separately or with 5V and FAN2 is not supplied.

Assembly Instructions to noATX supply (see Appendix A)

- Remove R710 (bottom) and mount R705 (100kOhm; bottom), R61 (210kOhm; bottom) to ensure, that the CPLD is supplied correctly.
- Remove R712 (bottom) and mount it on R711 (bottom), to switch the CPLD into the single supply mode.
- Remove J58 (top), to ensure, that there is no short with the onboard generated voltages possible.
- Mount R46 (0R; top) and R60 (210kOhm; bottom) to enable 5V Standby.

In the single supply mode there is a power save mode possible:

If R490 is removed and mounted on R491 (both on topside), the system will shut down after a short time (about 8 seconds) in S5 completely. This means that nearly no power is used from the power supply, because no device will be supplied. But in this case it is only possible to wake up the system by pressing the power button for at least one second.

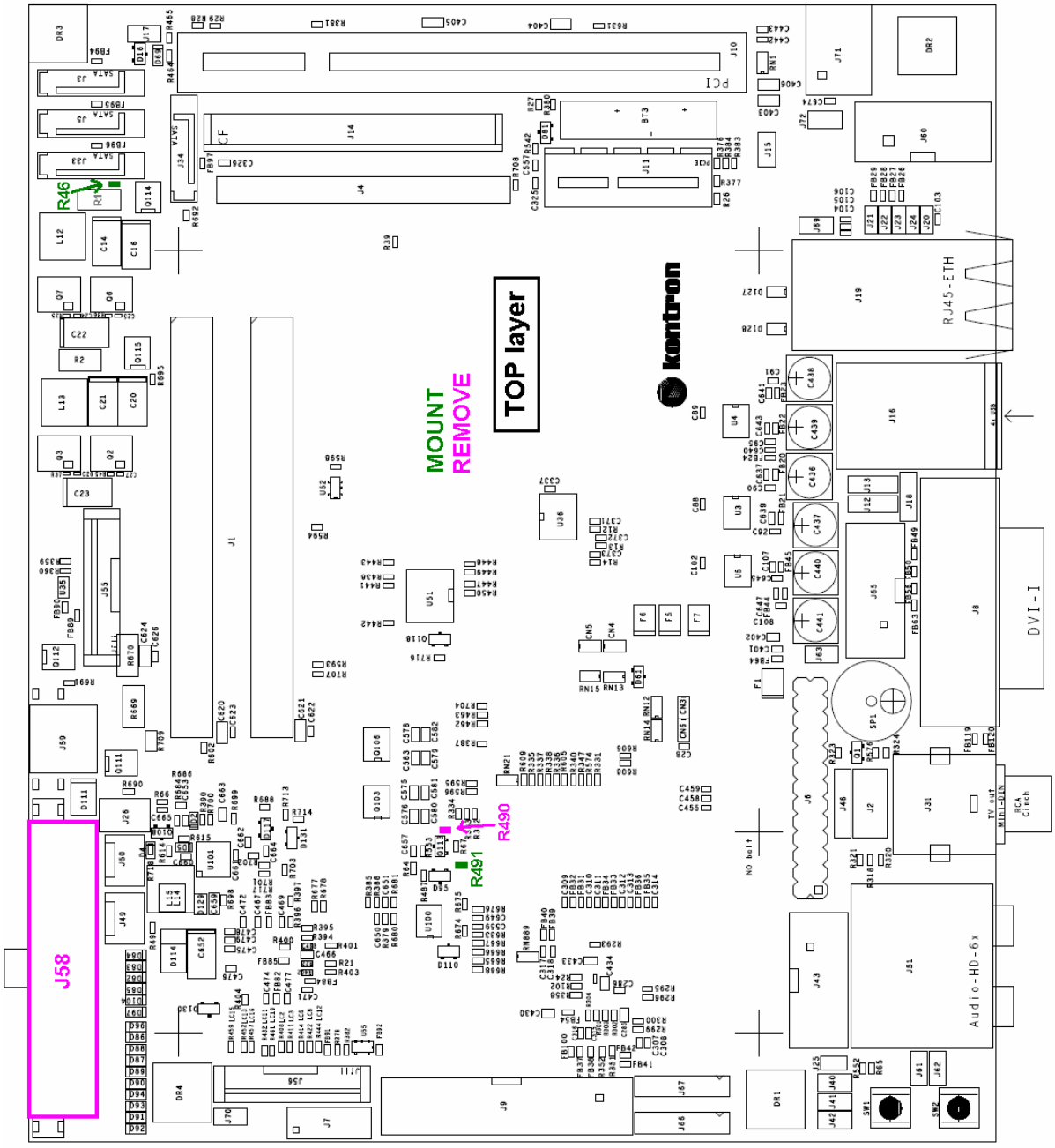
11 Security advice

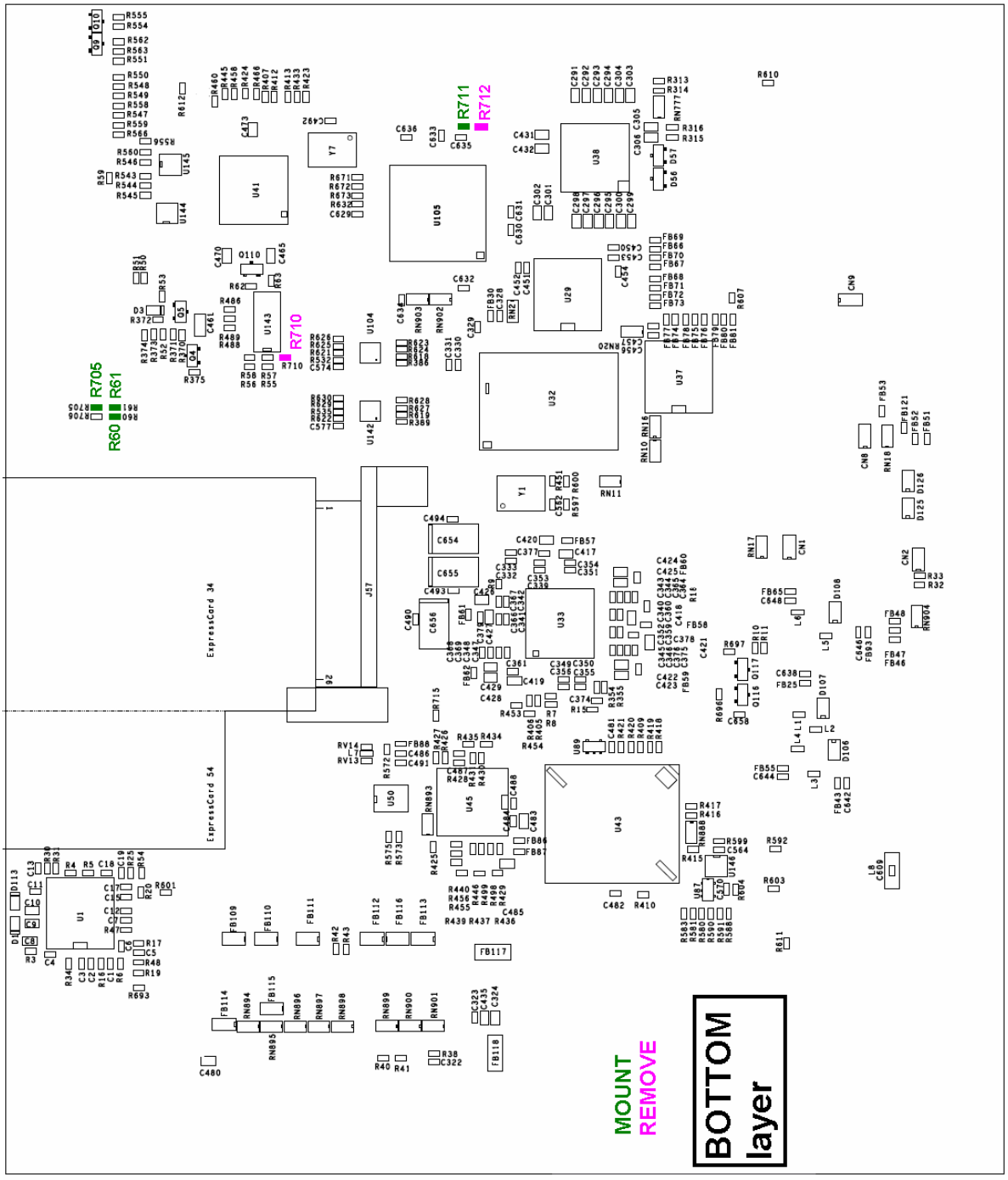
To protect the external power lines to peripheral devices the customer has to take care about:

- The wires to the external device have the right diameter to withstand the max. available current

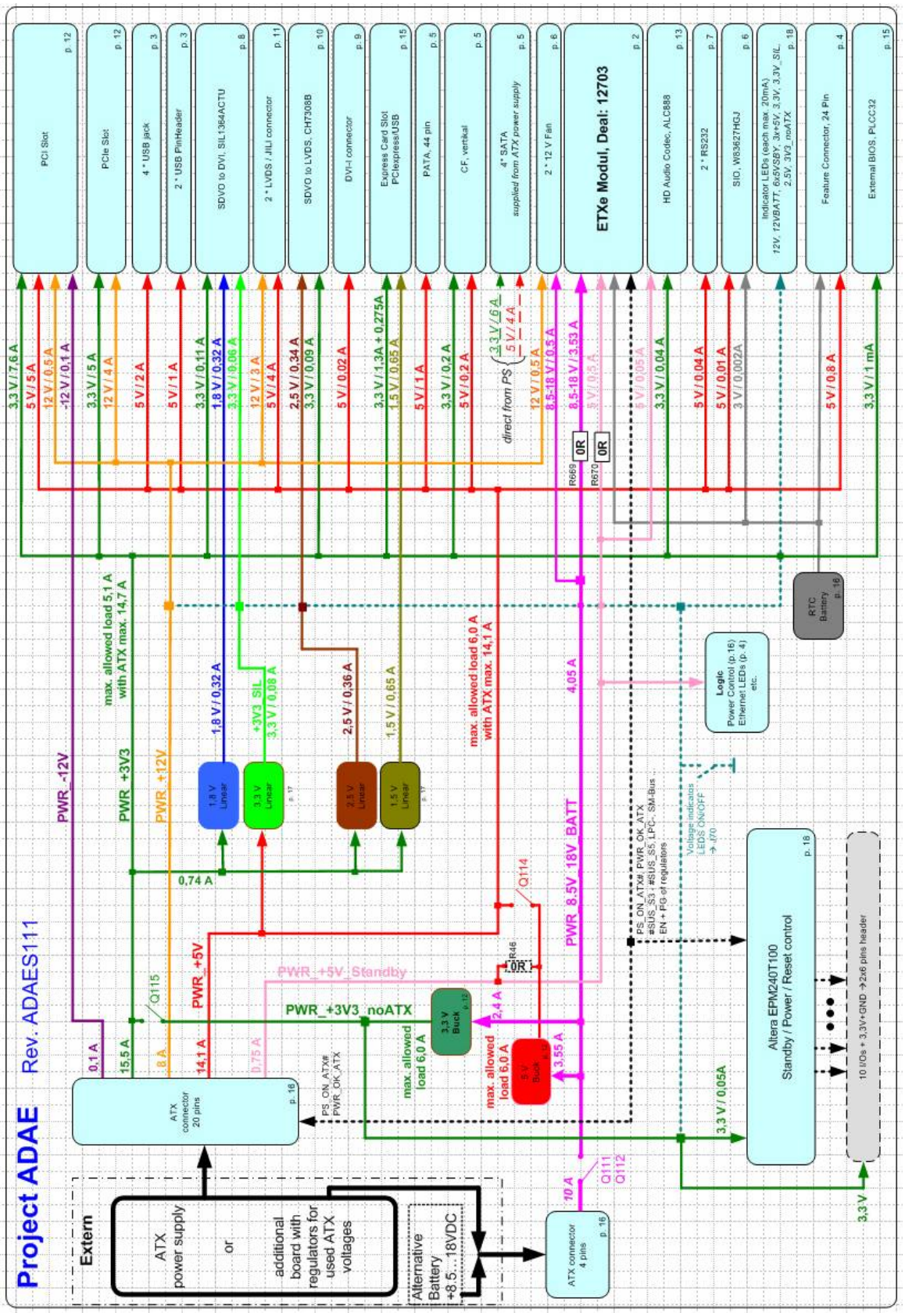
- The housing of the external device fulfils the fire protection requirements of IEC/EN 60950.

12 Appendix A - Assembly Instruction: noATX Supply




R705
R61
R60
R710
R711
R712
MOUNT
REMOVE
BOTTOM
layer
ExpressCard 34
ExpressCard 54

13 Appendix B - Power Distribution



14 Document History

Rev.	Date	Edited by	Changes
1.0_pre	27.11.2007	PRO	Initial Release
1.0	29.04.2008	PRO	Updated Audio section.
1.1	05.05.2008	PRO	Added Chapter 9 - Limitations and installation hints, J65 USB Pin out table and chapter 11 - Security Advice
1.2	13.05.2008	PRO	Updated Limitations & Support Chapter Corrected Feature Connector
1.3	10.12.2008	PRO	Changed Layout of chapter 5 Corrected Status LED description & Power Connector J59 Corrected some writing errors