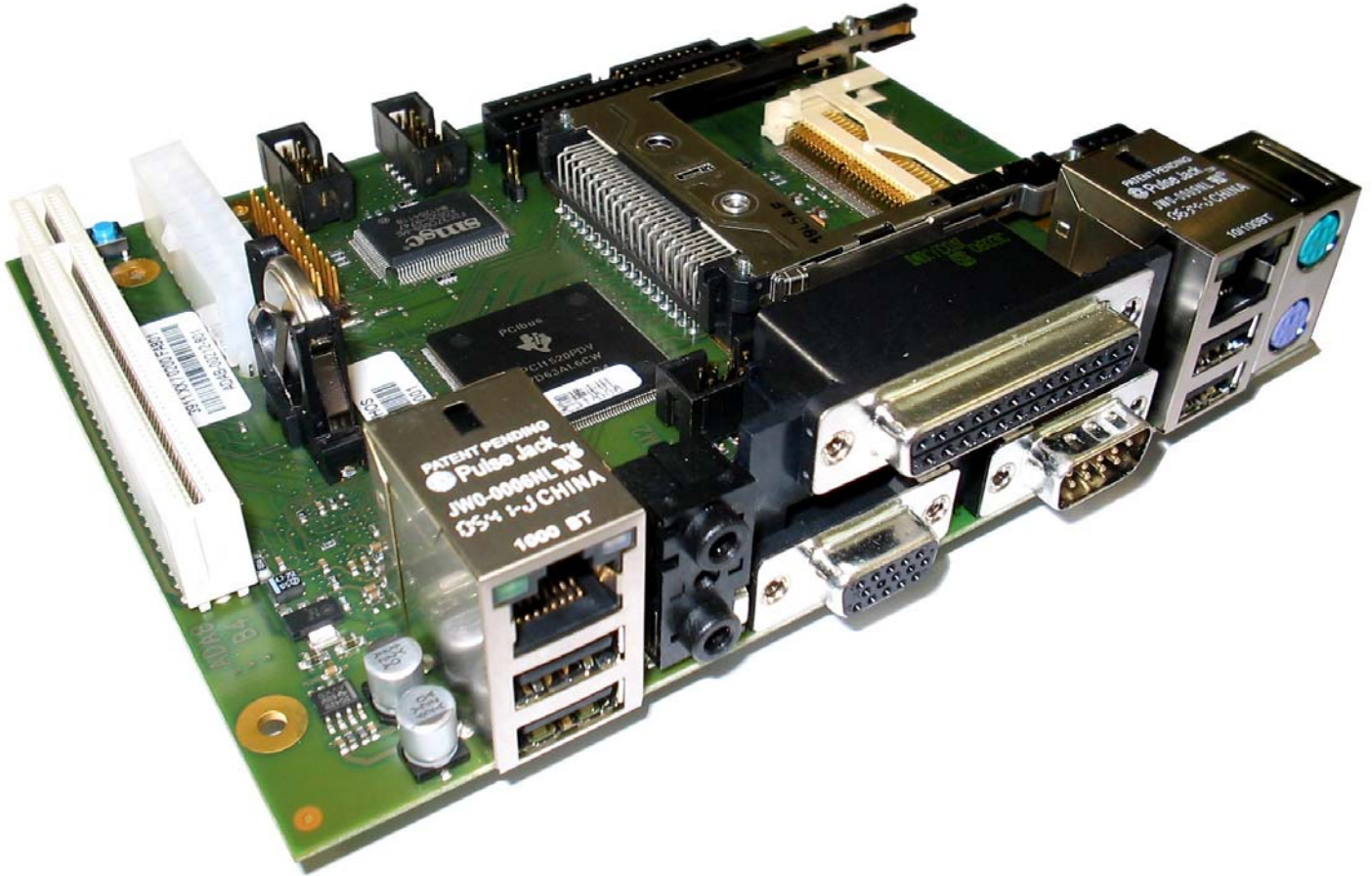


► Kontron User's Guide



► ETX miniBaseboard

Document Revision 1.11

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1 User Information

1.1 About This Document

This document provides information about products from Kontron Embedded Modules GmbH and/or its subsidiaries. No warranty of suitability, purpose, or fitness is implied. While every attempt has been made to ensure that the information in this document is accurate, the information contained within is supplied "as-is" and is subject to change without notice.

For the circuits, descriptions and tables indicated, Kontron assumes no responsibility as far as patents or other rights of third parties are concerned.

1.2 Copyright Notice

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- Microsoft is a registered trademark of Microsoft Corp.
- Intel is a registered trademark of Intel Corp.
- All other products and trademarks mentioned in this manual are trademarks of their respective owners.

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.

Kontron Embedded Modules GmbH will not be responsible for any defects or damages to other products not supplied by Kontron Embedded Modules GmbH that are caused by a faulty Kontron Embedded Modules GmbH product.

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.

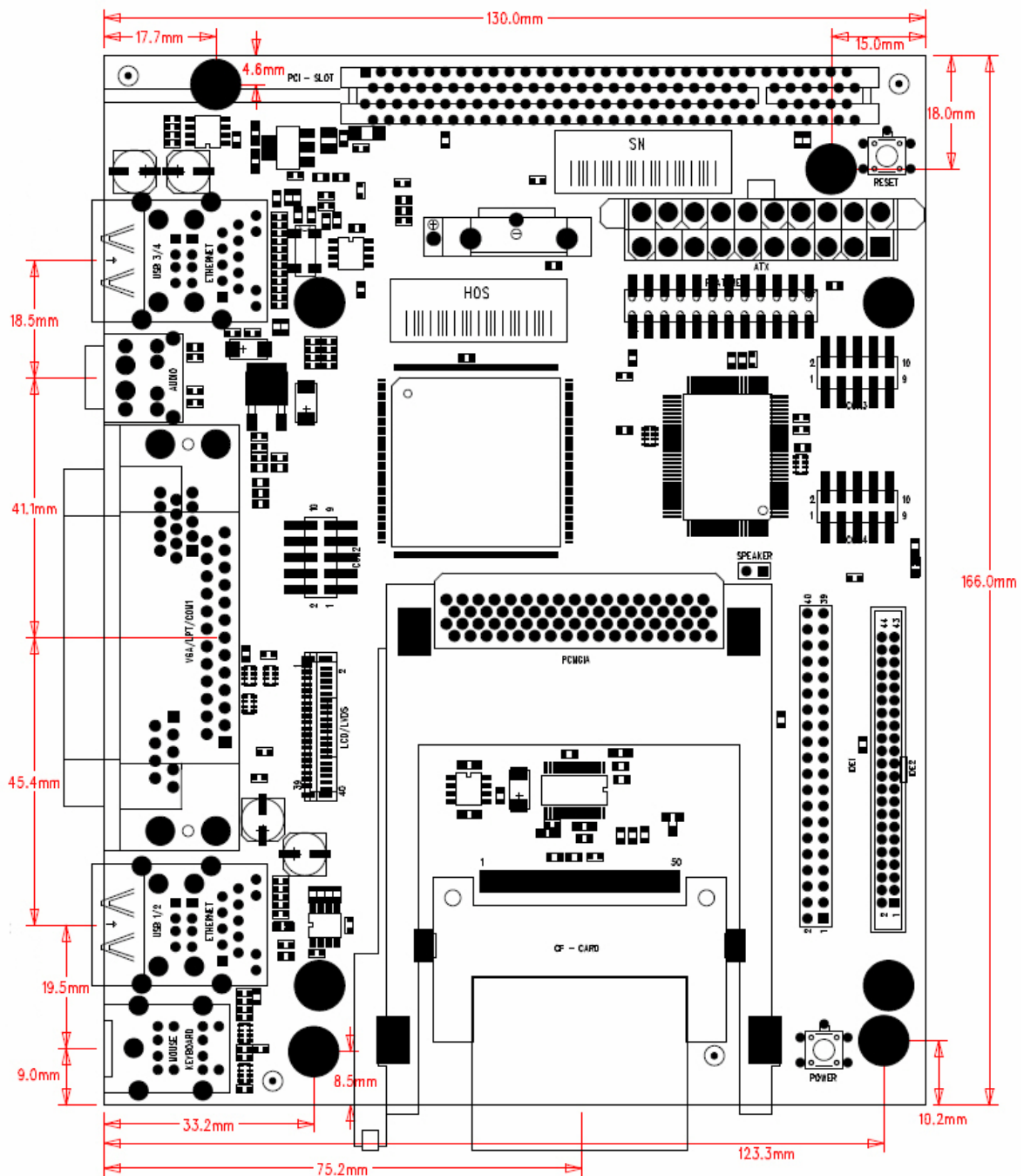
Before contacting Kontron Embedded Modules GmbH technical support, please consult our Web site at <http://www.kontron-emea.com/emd> for the latest product documentation, utilities, and drivers. If the information does not help solve the problem, contact us by telephone or email.

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2 Specifications

2.1 Mechanical Specifications

The ETX miniBaseboard is 166mm x 130mm in size and the height on top side of PCB is 29,5mm. See more detailed mechanical specifications in the figure below:



2.2 Environmental Specifications

2.2.1 Temperature

Operating:

- Ambient temperature: 0 to +70 °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 following short description is intended to convey a brief overall view of the components. Installation alternatives are depicted herein. Only special non-standard PC functions are explained, as information of all other interfaces is commonly available.

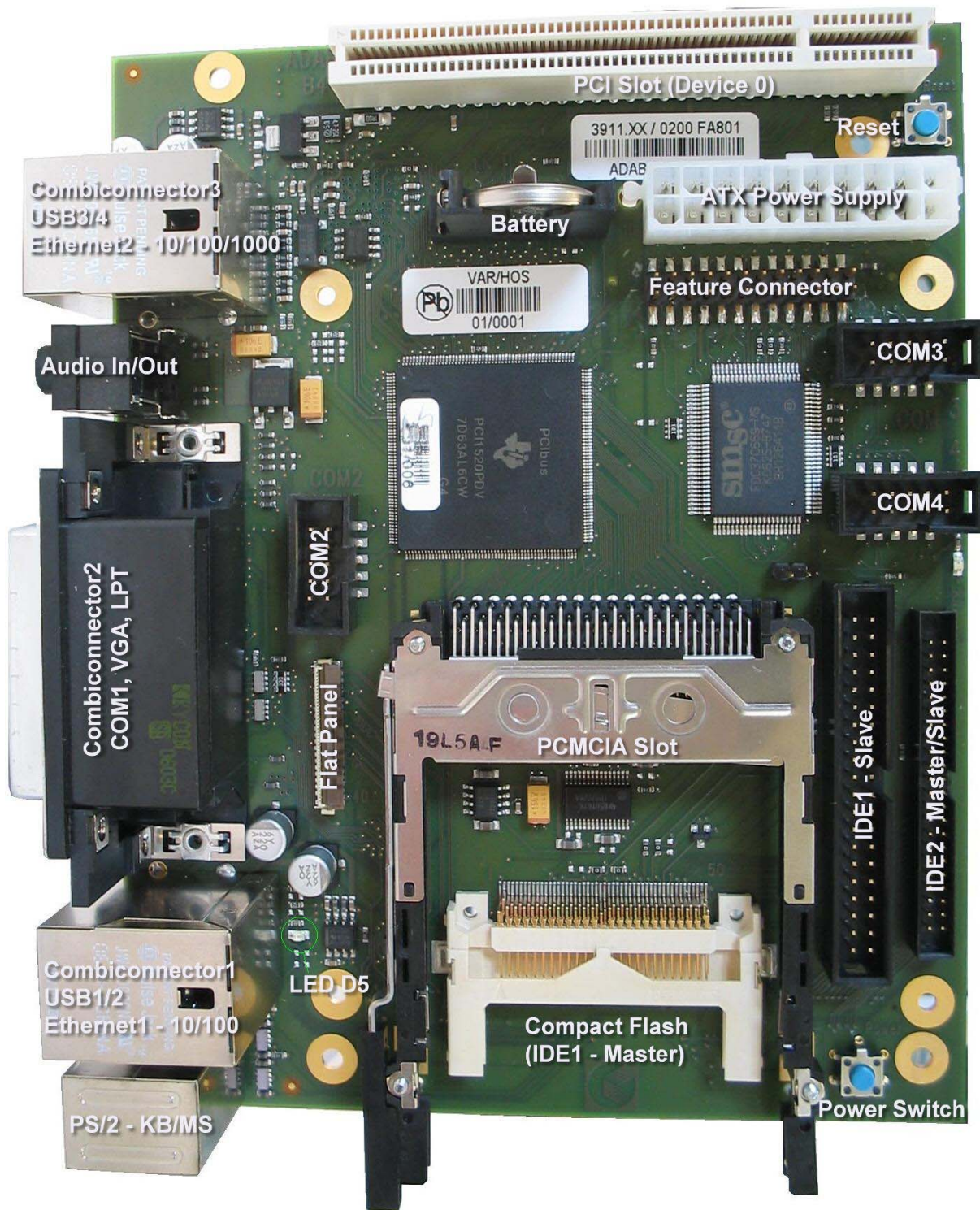
Summary of all available interfaces:

Connector	Description
Feature connector	Kontron 24pin standard connector for additional features
IDE1	Primary Master (CF-Slot, e.g. as bootdevice) Primary Slave (2.54mm, 40pin connector)
IDE2	Secondary Master/Slave (2.00mm, 44pin connector)
LPT1	25 pol. SUB-D connector, combiconnector 2
COM1	9 pol. SUB-D (V.24), combiconnector 2
COM2	10 pol. 2.54 mm connector (V.24)
COM3	10 pol. 2.54 mm connector
COM4	10 pol. 2.54 mm connector
VGA	15pl. SUB-D, combiconnector 2
Flat panel interface	JILI(D)-FFC-Connector (ETX board dependend)
USB1	Combiconnector 1
USB2	Combiconnector 1
USB3	Combiconnector 3
USB4	Combiconnector 3
Ethernet 1	10/100 Mbit, combiconnector 1
Ethernet 2	10/100/1000 Mbit, combiconnector 3
PS/2	PS/2 - Keyboard & Mouse
PCI Slot	
PCMCIA/Cardbus Slot	via external controller PCI1520
Audio Out	3.5mm jack
Audio In	3.5mm jack

Notes: * To protect external power lines of peripheral devices, make sure that:

- the wires have the right diameter to withstand the maximum available current
- the enclosure of the peripheral device fulfils the fire-protection requirements of IEC/EN60950

4 Connector locations



Note: The ETX board is plugged on the bottom of the mini ETX Baseboard

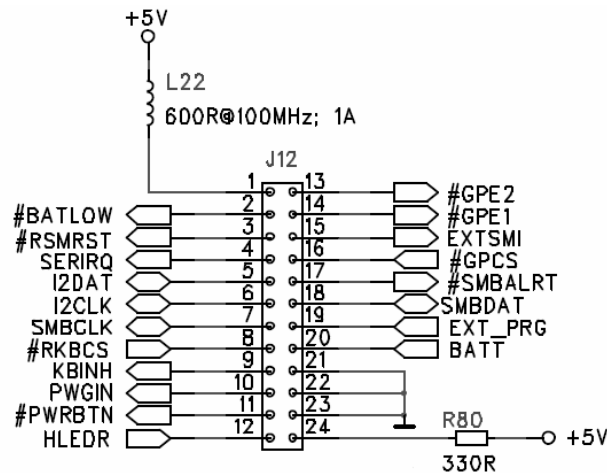
5 Connector pin out

5.1 Connector Overview

Pin#	JILI (LVDS)	JILI (digital)	Feature	COM 1,2,3,4
1	LTGIO0	VSYNC	VCC_UL	DCD
2	LCDD00	R0	BATLOW#	DSR
3	LCDD01	R1	RSMRST#	RX
4	DIGON	DIGON	SERIRQ#	RTS
5	LCDD02	R2	I2DAT	TX
6	LCDD03	R3	I2CLK	CTS
7	BIASON	HSYNC	SMBCLK	DTR
8	LCDD04	R4	RKBCS#	RI
9	LCDD05	R5	KBINH	GND
10	GND	GND	PWGIN	-
11	LCDD06	G0	PWRBTN#	-
12	LCDD07	G1	HLEDR	-
13	GND	GND	GPE2#	-
14	LCDD08	G2	GPE1#	-
15	LCDD09	G3	EXTSMI	-
16	JILI_DAT	JILI_DAT	GPCS#	-
17	LCDD010	G4	SMBALRT#	-
18	LCDD011	G5	SMBDAT	-
19	JILI_CLK	JILI_CLK	EXT_PRG	-
20	LCDD012	B0	BATT	-
21	LCDD013	B1	GND	-
22	DETECT#	DETECT#	GND	-
23	LCDD014	B2	GND	-
24	LCDD015	B3	Resistor 330Ω to VCC	-
25	GND	GND		-
26	LCDD016	B4		-
27	LCDD017	B5		-
28	GND	GND		-
29	LCDD018	SHFCLK		-
30	LCDD019	EN		-
31	VCC	VCC		-
32	VCC	VCC		-
33	VCC	VCC		-
34	VCC	VCC		-
35	BLON#	BLON#		-
36	GND	GND		-
37	GND	GND		-
38	+12V	+12V		-
39	+12V	+12V		-
40	+12V	+12V		-

The names of the COM ports are printed on the top of the PCB. Depending on the specific ETX module, LVDS (JILI) or digital (JIDI) LCD signals are supported.

5.2 Feature Connector



Feature Connector	
VCC_UL	+5V UL-protected with inductor (600R@100MHz, 1A)
BATLOW#	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.
RSMRST#	Resume Reset input. This input may be driven low by external circuitry in order to reset the power management logic on the ETX module.
SERIRQ	Serial interrupt request. This pin is used to support the serial interrupt protocol.
I2CLK, I2DAT	Clock and data line of I2C-Bus. Switched I/O-lines with approximate 10kHz. Do not use as multi master. Intended for I2C and other simple I/O-devices.
SMBDATA, SMBCLK	Clock and data line of SM-Bus. For future use. Do not use today.
GPE2#	General-purpose power management event input 2. May be driven low by external circuitry to signal an external power management event. Within the ETX module, this pin is commonly connected to the chipset's RING# input.
GPE1#	General-purpose power management event input 1. May be driven low by external circuitry to signal an external power management event. Within the ETX module, this pin is commonly connected to the chipset's LID# input.
EXTSMI	System management interrupt input. May be driven low by external circuitry to initiate an SMI.
GPCS#	Reserved. Do not connect to this pin.
SMBALRT#	System Management Bus Alert input. May be driven low by SMB devices in order to signal an event on the SM Bus.
EXT_PRG	Reserved. Do not connect to this pin.
ROMKBCS#	Reserved. Do not connect to this pin.
BATT	3V backup cell input. BATT 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)
KBINH	Keyboard Inhibit.
PWGIN	High active input for the ETX-PC indicates that power from the power supply is ready. It can also be used as low active reset input signal.
PWRBTN#	Power Button Input. This input is used to support the ACPI Power Button function.
HLEDR	Low active output signal, which indicates activity on IDE interfaces.

5.3 Flat panel Connector

LCD Connector (JILI)	
BIASON	Controls panel contrast voltage.
DIGON	Controls panel digital power.
BLON#	Controls backlight power.
LTGIO0	General purpose I/O pin; not used by JILI interface.
JILI_DAT, JILI_CLK	I2C interface for panel parameter EEPROM. This EEPROM is mounted on the LVDS receiver. The data in the EEPROM allows the ETX module to automatically set the proper timing parameters for a specific LCD panel.
DETECT#	Panel hot-plug detection. Implementation of this pin is optional. See the specific ETX module product manual for details.
LCDD00..19	LCD data output pins LVDS support.

Pin Name	LVDS signal	Channel
LCDD00	Txout0-	first
LCDD01	Txout0+	first
LCDD02	Txout1-	first
LCDD03	Txout1+	first
LCDD04	Txout2-	first
LCDD05	Txout2+	first
LCDD06	Txclk-	first
LCDD07	Txclk+	first
LCDD08	Txout3-	first
LCDD09	Txout3+	first
LCDD010	Txout0-	second
LCDD011	Txout0+	second
LCDD012	Txout1-	second
LCDD013	Txout1+	second
LCDD014	Txout2-	second
LCDD015	Txout2+	second
LCDD016	Txclk-	second
LCDD017	Txclk+	second
LCDD018	Txout3-	second

LCD Connector (JIDI)	
R[0..5], G[0..5], B[0..5]	Parallel digital signals for red, green and blue pixel data.
HSYNC	Horizontal Sync: This output supplies the horizontal synchronization pulse for flat panels. This signal is named LP (Line Pulse) in some flat panel literature.
VSNC	Vertical Sync: This output supplies the vertical synchronization pulse for flat panels. This signal is named FLM (First Line Marker) in some flat panel literature.
DE	Data enable signal. Usage depends on display type.
SHCLK	Panel data clock signal.

6 Super I/O controller

The support of this controller is integrated in all Kontron's ETX® BIOS revisions. On this baseboard this controller supports the additional serial ports (COM3 and COM4). Please check the Application Note 'Connecting an external SuperIO controller to ETX or PC104' (former JAP0033) and the ETX eval schematics, available on our web site, for design-in example.

7 PCMCIA/CardBus Controller PCI1520

The onboard PCMCIA controller is configured for parallel interrupts. Please note that using all available COM ports may reduce the amount of available resources for interrupts (IRQs 3,4,10,11 are routed) and/or I/O area to establish proper function of plugged memory or I/O devices. This device is PCI device slot 3.

8 Dual Ethernet

8.1 Ethernet1 - ETX® Ethernet

Ethernet1 connector is placed in Combiconnector1 and connected to ETX® Module.

LAN LED activity on Combiconnector1:

- Activity LED green = RX/TX activity
- Link LED yellow = Link up

LED D5 activity on ETX miniBaseboard:

- Speed LED D5 off = 10Mbps
- Speed LED D5 green = 100Mbps

8.2 Ethernet2 - onboard Gigabit LAN

Ethernet2 connector is placed in Combiconnector3 and connected to onboard **Gigabit LAN Controller Intel82541EI**. Please take into consideration that you may need a special driver from Intel for this controller. The driver can be found in the download section for ETX miniBaseboard on Kontron's Webpage. This device is PCI device slot 1.

LAN LED activity on Combiconnector3:

- LED1 green = Link up
- LED1 blinking = RX/TX activity
- LED2 off = 10Mbps
- LED2 yellow = 100Mbps
- LED2 green = 1000Mbps

9 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 tyyppiin. Havita käytetty 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).*

10 Document History

Rev.	Date	Edited by	Changes
	06.03.06	T. Limbrunner	short description created, first release
1.10	03.04.07	PRO	Changed to new Kontron Style, Updated description and added features of Redesign, new product photo, new connector description and chapter specifications.
1.11	03.07.07	GUL	Updated Footer and header