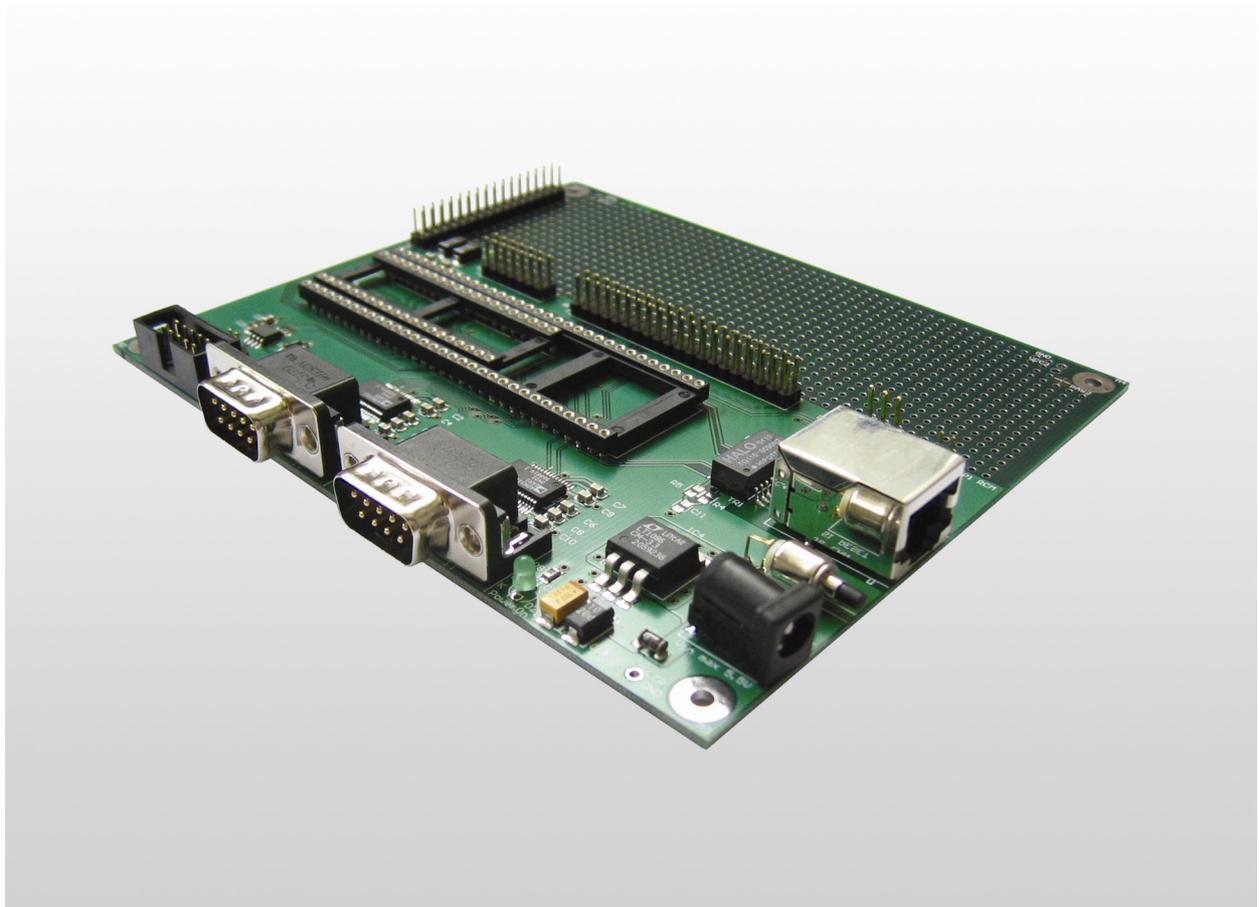


DNP/EVA6

Board Revision 1.2

Hardware Reference



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1 INTRODUCTION

Thank you for choosing a SSV Product. We are confident that you will be pleased with the performance of your product. Please take a few minutes to read this manual.

For further information about the individual components you may follow the links from our website at <http://www.dilnetpc.com>.

Our website contains a lot of technical information, which will be updated in regular periods.

1.1 Features Evaluation Board DNP/EVA6

- One 40-pin DIL socket for a DIL/NetPC DNP/5282
- One 64-pin DIL socket for a DIL/NetPC DNP/5280
- Two serial interfaces (RS232)
- One 10/100Mbps Ethernet interface
- One reset switch
- One 5V DC power input connector
- Prototype-area

1.2 Block Diagram

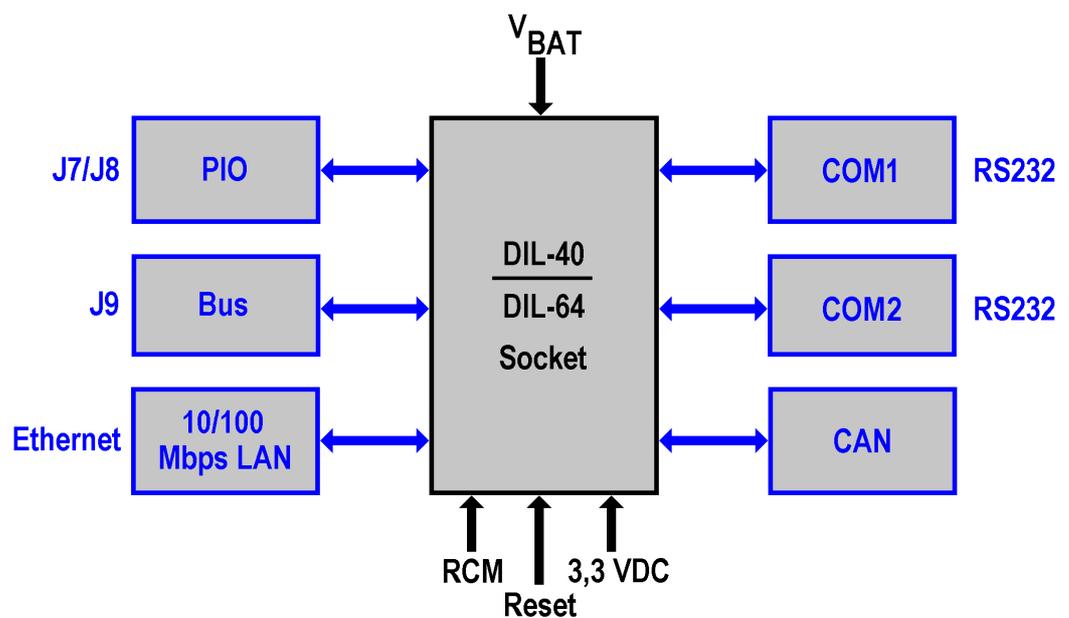
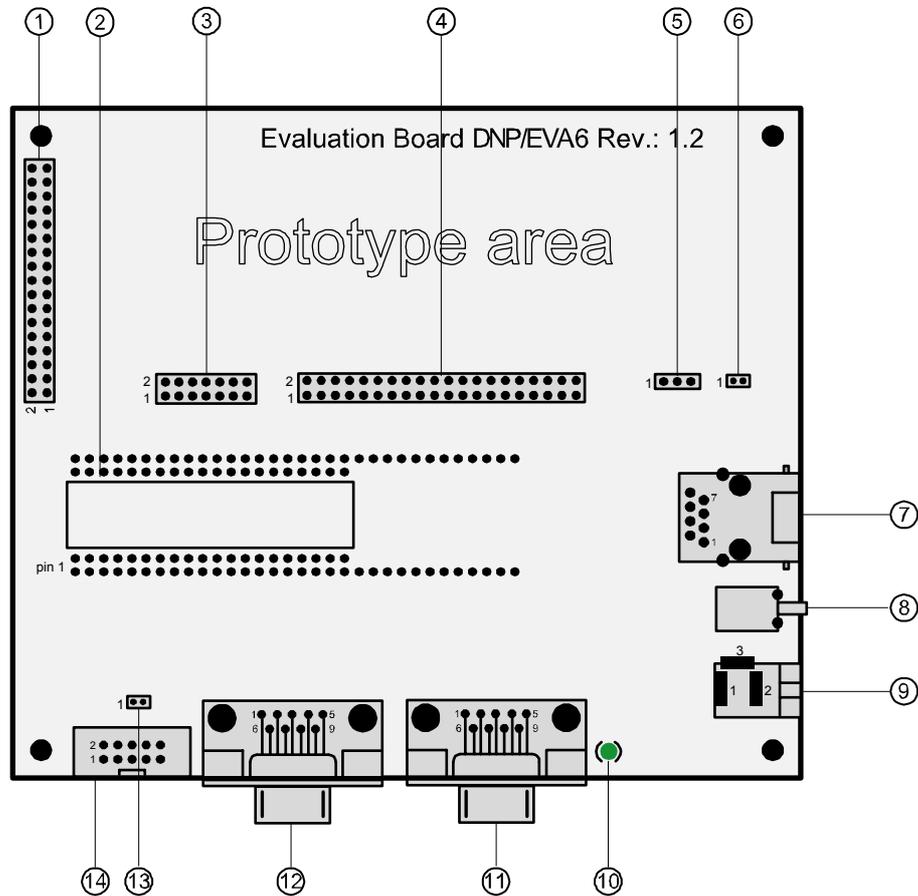


Figure 1-1: Block diagram of the DNP/EVA6

2 BOARD LAYOUT



- | | |
|--------------------------------------|--------------------------------|
| ① J7 - PIO-signals 1 | ⑧ S1 - Reset button |
| ② J1/J2 - 40/64-pin DIL socket | ⑨ J11 - Power connector |
| ③ J8 - PIO-signals 2 | ⑩ D2 - Power-LED |
| ④ J9 - Expansion bus | ⑪ J4 - COM2 (RS232) |
| ⑤ J10 - V _{BAT} connector | ⑫ J3 - COM1 (RS232) |
| ⑥ JP1 - RCM jumper | ⑬ JP2 - CAN termination jumper |
| ⑦ J6 - 10/100Mbps Ethernet interface | ⑭ J5 - CAN connector |

Figure 2-1: Main components of the DNP/EVA6

3 BOARD COMPONENTS

This chapter describes components of the DNP/EVA6 shown in **chapter 2** and gives a short overview about their respective functions.

3.1 J7 – PIO-Signals 1

This 34 pin connector is driven by the 40-pin DIL socket and the 64-pin DIL socket. It offers the following signals:

PA0, PA1, PA2, PA3, PA4, PA5, PA6, PA7 and

PB0, PB1, PB2, PB3, PB4, PB5.

Please see **chapter 4.9** for the complete pin assignment.

3.2 J1/J2 – 40/64-pin DIL Socket

The DIL socket with 64 pins can hold one DIL/NetPC DNP5280.

The DIL socket with 40 pins can hold one DIL/NetPC DNP5282.

3.3 J8 – PIO-Signals 2

This 14 pin connector is driven by the 40-pin DIL socket and the 64-pin DIL socket. It offers the following signals:

PC0, PC1, PC2, PC3 and

QSPI.CS1, QSPI.CS2 (chip select output).

Please see **chapter 4.10** for the complete pin assignment.

3.4 J9 – Expansion Bus

This 40 pin connector is only driven by the 64-pin DIL socket.

Please see **chapter 4.13** for the complete pin assignment.

<p>Note: This function is only with the DIL/NetPC DNP/5280 available. The DNP/5282 does not support the expansion bus!</p>

3.5 J10 – V_{bat} Connector

Please see **chapter 4.11** for the complete pin assignment.

Note: This function is only with the DIL/NetPC DNP/5280 available. The DNP/5282 does not need a battery!

3.6 JP1 – RCM Jumper

The **Remote Console Mode (RCM)** realizes some basic operating modes such as a boot loader or a ROM-monitor program.

Note: The default setting of the RCM jumper is not set. Only if the RCM jumper is set you will be able to boot μ CLinux on the DIL/NetPC.

To activate RCM on the DIL/NetPC place a jumper cap on both pins of the RCM jumper, so that it is short. If you remove the jumper cap or place it on just one pin, the jumper is not set and you are not able to use RCM.

3.7 J6 – 10/100Mbps Ethernet Interface

The RJ45 Ethernet interface on the DNP/EVA6 is just a simple connection over a transformer to the DIL interface pins, which are connected to the LAN controller onto the DIL/NetPC.

3.8 S1 – Reset Button

Press the reset button if the system hangs or you need to restart it. Pressing the reset button will only restart the DIL/NetPC. To reset any connected devices please turn off the complete power from the system.

3.9 J11 – Power Connector

The power connector on the DNP/EVA6 has to be connected with the power supply, which is added to your Starter Kit. Alternatively you are able to use a similar power supply that provides +5V DC \pm 10% and approx. 1500 mA current.

3.10 D2 – Power LED

The Evaluation Board DNP/EVA6 is equipped with a single green LED. This LED will light up when the board is provided with the necessary operating voltage.

3.11 J3/J4 – Serial Interfaces COM1 and COM2

For an easy connection between the DNP/EVA6 and your development system you can use the serial interfaces COM1 and COM2. The COM interfaces are realized as RS232 standard compliant Sub-D ports with 9 pins.

Please see **chapter 4.5 and 4.6** for the exact layout of the COM interfaces.

Note: The serial interface COM2 does not offer handshake-signals!

3.12 JP2 – CAN Termination Jumper

To switch the CAN termination resistor (62 Ohm) to the CAN-signals CAN + and CAN - place a jumper cap on both pins of the CAN termination jumper, so that it is short.

Without the jumper cap the CAN termination jumper is not set and there is no CAN termination resistor for the CAN-signals CAN + and CAN -.

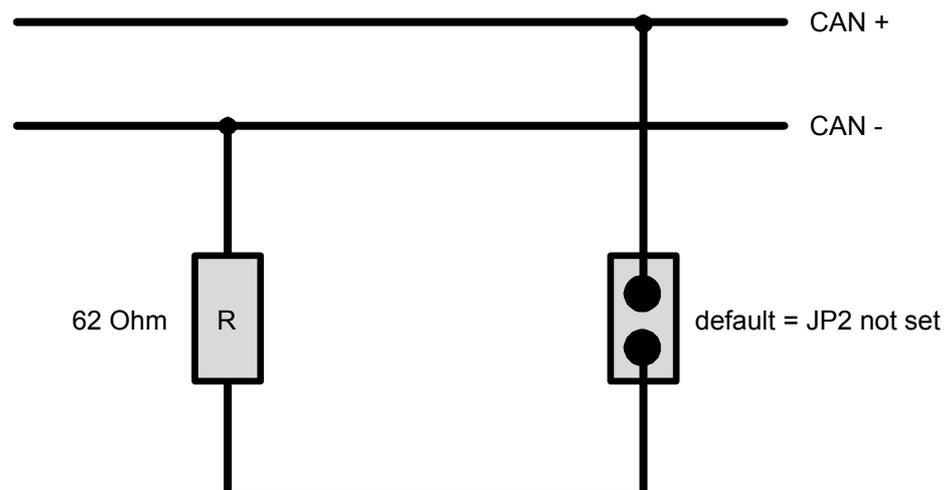


Figure 3-1: CAN termination resistor

3.13 J5 – CAN Connector

The CAN connector is the physical interface to the DIL/NetPC CAN controller. There is an on-board 3.3V CAN transceiver SN65HVD230 (Texas Instruments) between the DIL/NetPC CAN controller and this connector.

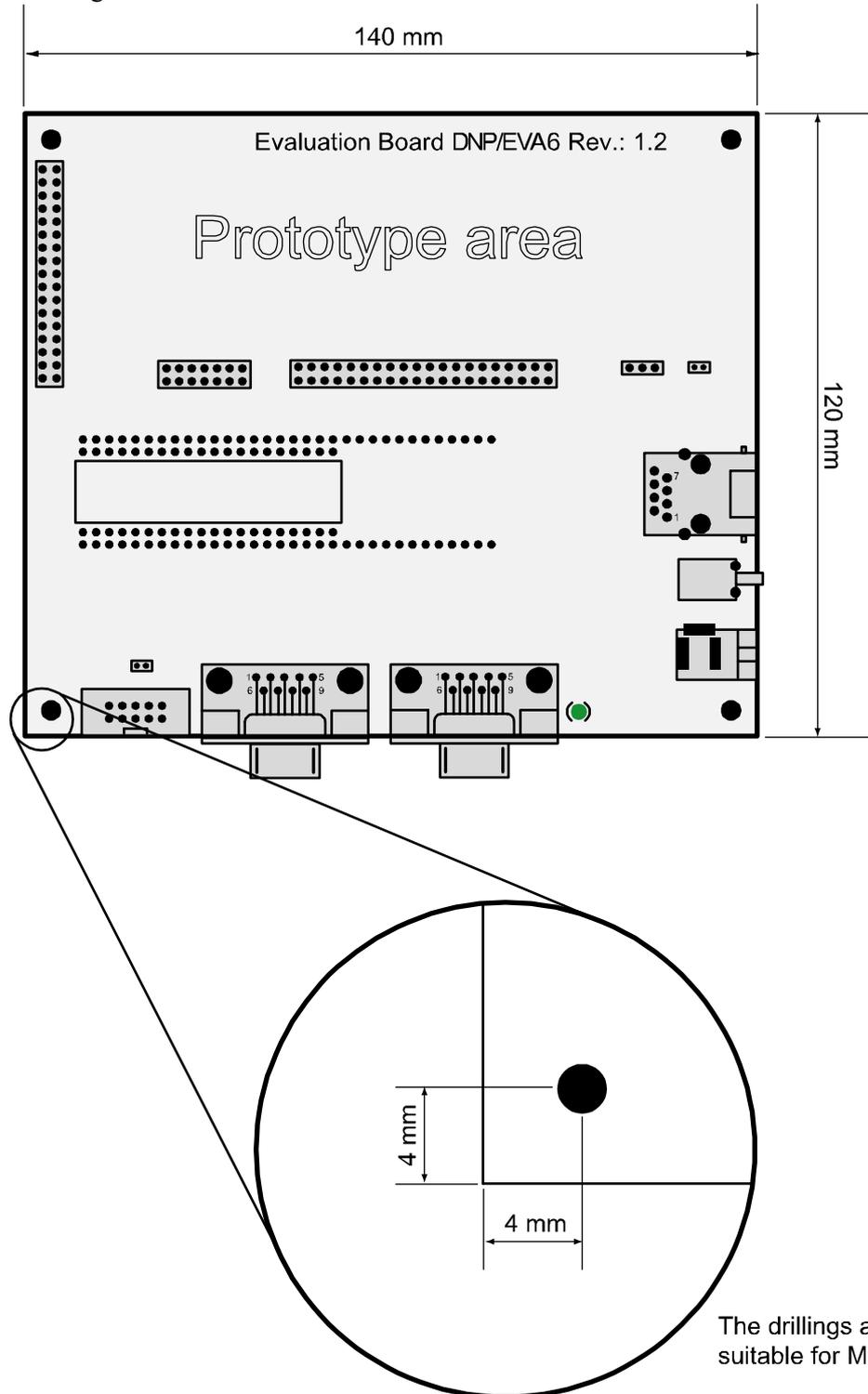
3.14 Prototype Area

The prototype area (wire-wrap) offers space to develop and to test your own applications and circuits on the DNP/EVA6.

4 THE DNP/EVA6 IN DETAIL

4.1 Mechanical Dimensions

All length dimensions have a tolerance of 0.5 mm.



The drillings are suitable for M3 screws.

Figure 4-1: Dimensions of the DNP/EVA6

4.2 Pin Assignment of 64-pin DIL Connector J1 (1. Part)

Pin	Name	Group	Function
1	PA0	PIO	Parallel I/O, Port A, Bit 0
2	PA1	PIO	Parallel I/O, Port A, Bit 1
3	PA2	PIO	Parallel I/O, Port A, Bit 2
4	PA3	PIO	Parallel I/O, Port A, Bit 3
5	PA4	PIO	Parallel I/O, Port A, Bit 4
6	PA5	PIO	Parallel I/O, Port A, Bit 5
7	PA6	PIO	Parallel I/O, Port A, Bit 6
8	PA7	PIO	Parallel I/O, Port A, Bit 7
9	PB0	PIO	Parallel I/O, Port B, Bit 0
10	PB1	PIO	Parallel I/O, Port B, Bit 1
11	PB2	PIO	Parallel I/O, Port B, Bit 2
12	PB3	PIO	Parallel I/O, Port B, Bit 3
13	PB4	PIO	Parallel I/O, Port B, Bit 4
14	PB5	PIO	Parallel I/O, Port B, Bit 5
15	PB6	PIO	Parallel I/O, Port B, Bit 6
16	PB7	PIO	Parallel I/O, Port B, Bit 7
17	PC0	PIO	Parallel I/O, Port C, Bit 0
18	PC1	PIO	Parallel I/O, Port C, Bit 1
19	PC2	PIO	Parallel I/O, Port C, Bit 2
20	PC3	PIO	Parallel I/O, Port C, Bit 3
21	RXD1	SIO	COM1 Serial Port, RXD Pin
22	TXD1	SIO	COM1 Serial Port, TXD Pin
23	CTS1	SIO	COM1 Serial Port, CTS Pin
24	RTS1	SIO	COM1 Serial Port, RTS Pin
25	DCD1	SIO	COM1 Serial Port, DCD Pin
26	DSR1	SIO	COM1 Serial Port, DSR Pin
27	DTR1	SIO	COM1 Serial Port, DTR Pin
28	RI1	SIO	COM1 Serial Port, RI Pin
29	RESIN	RESET	Reset Input
30	TX+	LAN	10/100 Mbps LAN, TX+ Pin
31	TX-	LAN	10/100 Mbps LAN, TX- Pin
32	GND	----	Ground

Table 4-1: Pinout 64-pin DIL connector – Pin 1 to 32

4.3 Pin Assignment of 64-pin DIL Connector J1 (2. Part)

Pin	Name	Group	Function
33	RX+	LAN	10/100 Mbps LAN, RX+ Pin
34	RX-	LAN	10/100 Mbps LAN, RX- Pin
35	RESOUT	RESET	Reset Output
36	VBAT	PSP	Real-Time Clock Battery
37	CLKOUT	PSP	Clock Output
38	TXD2	PSP	COM2 Serial Port, TXD Pin
39	RXD2	PSP	COM2 Serial Port, RXD Pin
40	INT5	PSP	Interrupt Input 5
41	INT4	PSP	Interrupt Input 4
42	INT3	PSP	Interrupt Input 3
43	INT2	PSP	Interrupt Input 2
44	INT1	PSP	Interrupt Input 1
45	CS4	PSP	Chip Select Output 4
46	CS3	PSP	Chip Select Output 3
47	CS2	PSP	Chip Select Output 2
48	CS1	PSP	Chip Select Output 1
49	IOCHRDY	PSP	I/O Channel Ready
50	IOR	PSP	I/O Read Signal
51	IOW	PSP	I/O Write Signal
52	SA3	PSP	Address Bit 3
53	SA2	PSP	Address Bit 2
54	SA1	PSP	Address Bit 1
55	SA0	PSP	Address Bit 0
56	SD7	PSP	Data Bit 7
57	SD6	PSP	Data Bit 6
58	SD5	PSP	Data Bit 5
59	SD4	PSP	Data Bit 4
60	SD3	PSP	Data Bit 3
61	SD2	PSP	Data Bit 2
62	SD1	PSP	Data Bit 1
63	SD0	PSP	Data Bit 0
64	Vcc	PSP	3.3 Volt Power Input

Table 4-2: Pinout 64-pin DIL connector – Pin 33 to 64

4.4 Pin Assignment of 40-pin DIL Connector J2

Pin	Name	Group	Function
1	PA0	PIO	Parallel I/O, Port A, Bit 0
2	PA1	PIO	Parallel I/O, Port A, Bit 1
3	PA2	PIO	Parallel I/O, Port A, Bit 2
4	PA3	PIO	Parallel I/O, Port A, Bit 3
5	PA4	PIO	Parallel I/O, Port A, Bit 4
6	PA5	PIO	Parallel I/O, Port A, Bit 5
7	PA6	PIO	Parallel I/O, Port A, Bit 6
8	PA7	PIO	Parallel I/O, Port A, Bit 7
9	PB0	PIO	Parallel I/O, Port B, Bit 0
10	PB1	PIO	Parallel I/O, Port B, Bit 1
11	PB2	PIO	Parallel I/O, Port B, Bit 2
12	PB3	PIO	Parallel I/O, Port B, Bit 3
13	PB4	PIO	Parallel I/O, Port B, Bit 4
14	PB5	PIO	Parallel I/O, Port B, Bit 5
15	PB6	PIO	Parallel I/O, Port B, Bit 6
16	PB7	PIO	Parallel I/O, Port B, Bit 7
17	RESIN	RESET	Reset Input
18	SPI.CS1	SPI	QSPI Chip Select Output 1
19	SPI.CS2	SPI	QSPI Chip Select Output 2
20	GND	---	Ground
21	RCM	---	RCM (Remote Console Mode) Input
22	TX+	LAN	10/100 Mbps LAN, TX+ Pin
23	TX-	LAN	10/100 Mbps LAN, TX- Pin
24	RX+	LAN	10/100 Mbps LAN, RX+ Pin
25	RX-	LAN	10/100 Mbps LAN, RX- Pin
26	TXD2	SIO	COM2 Serial Port, TXD Pin
27	RXD2	SIO	COM2 Serial Port, RXD Pin
28	RI1	SIO	COM1 Serial Port, RI Pin
29	DTR1	SIO	COM1 Serial Port, DTR Pin
30	DSR1	SIO	COM1 Serial Port, DSR Pin
31	DCD1	SIO	COM1 Serial Port, DCD Pin
32	RTS1	SIO	COM1 Serial Port, RTS Pin
33	CTS1	SIO	COM1 Serial Port, CTS Pin
34	TXD1	SIO	COM1 Serial Port, TXD Pin
35	RXD1	SIO	COM1 Serial Port, RXD Pin
36	PC0	PIO	Parallel I/O, Port C, Bit 0
37	PC1	PIO	Parallel I/O, Port C, Bit 1
38	PC2	PIO	Parallel I/O, Port C, Bit 2
39	PC3	PIO	Parallel I/O, Port C, Bit 3
40	Vcc	---	3.3 Volt Power Input

Table 4-3: Pinout 40-pin DIL connector – Pin 1 to 40

4.5 Pin Assignment of COM1 Connector J3

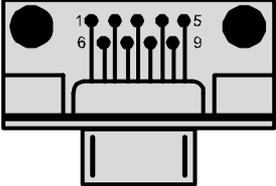
Top view	Pin	Name	Function
	1	DCD	COM1 Serial Port, DCD pin
	2	RXD	COM1 Serial Port, RXD pin
	3	TXD	COM1 Serial Port, TXD pin
	4	DTR	COM1 Serial Port, DTR pin
	5	GND	Ground
	6	DSR	COM1 Serial Port, DSR pin
	7	RTS	COM1 Serial Port, RTS pin
	8	CTS	COM1 Serial Port, CTS pin
	9	RI	COM1 Serial Port, RI pin

Table 4-4: Pinout COM1 connector

4.6 Pin Assignment of COM2 Connector J4

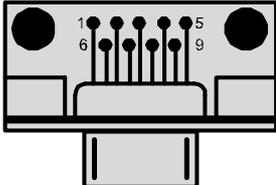
Top view	Pin	Name	Function
	1	DCD	not connected
	2	RXD	COM2 Serial Port, RXD pin
	3	TXD	COM2 Serial Port, TXD pin
	4	NC	not connected
	5	GND	Ground
	6	NC	not connected
	7	NC	not connected
	8	NC	not connected
	9	NC	not connected

Table 4-5: Pinout COM2 connector

4.7 Pin Assignment of CAN Connector J5

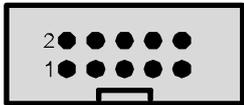
Top view	Pin	Name	Function
	1	---	reserved
	2	GND	Ground
	3	CAN-	CAN low level
	4	CAN+	CAN high level
	5	GND	Ground
	6	---	reserved
	7	---	reserved
	8	---	reserved
	9	---	reserved
	10	---	reserved

Table 4-6: Pinout CAN connector

4.8 Pin Assignment of 10/100 Mbps Ethernet Connector J6

Top view	Pin	Name	Function
	1	TX+	10/100 Mbps LAN, TX+ pin
	2	TX-	10/100 Mbps LAN, TX- pin
	3	RX+	10/100 Mbps LAN, RX+ pin
	4	NC	not connected
	5	NC	not connected
	6	RX-	10/100 Mbps LAN, RX- pin
	7	NC	not connected
	8	NC	not connected

Table 4-7: Pinout 10/100 Mbps Ethernet connector

4.9 Pin Assignment of PIO-signals 1 J7

Top view	Pin	Name	Function
	1	Vcc	Power
	2	GND	Ground
	3	PA0	Parallel I/O, Port A, Bit 0
	4	GND	Ground
	5	PA1	Parallel I/O, Port A, Bit 1
	6	GND	Ground
	7	PA2	Parallel I/O, Port A, Bit 2
	8	GND	Ground
	9	PA3	Parallel I/O, Port A, Bit 3
	10	NC	not connected
	11	Vcc	Power
	12	GND	Ground
	13	PA4	Parallel I/O, Port A, Bit 4
	14	GND	Ground
	15	PA5	Parallel I/O, Port A, Bit 5
	16	GND	Ground
	17	PA6	Parallel I/O, Port A, Bit 6
	18	GND	Ground
	19	PA7	Parallel I/O, Port A, Bit 7
	20	NC	not connected
	21	Vcc	Power
	22	GND	Ground
	23	PB0	Parallel I/O, Port B, Bit 0
	24	GND	Ground
	25	PB1	Parallel I/O, Port B, Bit 1
	26	GND	Ground
	27	PB2	Parallel I/O, Port B, Bit 2
	28	GND	Ground
	29	PB3	Parallel I/O, Port B, Bit 3
	30	GND	Ground
	31	Vcc	Power
	32	GND	Ground
	33	PB4	Parallel I/O, Port B, Bit 4
	34	PB5	Parallel I/O, Port B, Bit 5

Table 4-8: Pinout PIO-signals 1

4.10 Pin Assignment of PIO-signals 2 J8

Top view	Pin	Name	Function
	1	Vcc	Power
	2	GND	Ground
	3	PC0	Parallel I/O, Port C, Bit 0
	4	GND	Ground
	5	PC1	Parallel I/O, Port C, Bit 1
	6	GND	Ground
	7	PC2	Parallel I/O, Port C, Bit 2
	8	GND	Ground
	9	PC3	Parallel I/O, Port C, Bit 3
	10	GND	Ground
	11	SPI.CS1	QSPI Chip Select Output 1
	12	GND	Ground
	13	SPI.CS2	QSPI Chip Select Output 2
	14	Vcc	Power

Table 4-9: Pinout PIO-signals 2

4.11 Pin Assignment of V_{BAT} Connector J10

Top view	Pin	Name	Function
	1	V _{IN}	V _{BAT}
	2	GND	Ground
	3	NC	Not connected

Table 4-10: Pinout power connector

4.12 Pin Assignment of Power Connector J11

Top view	Pin	Name	Function
	1	Vcc	Power In
	2	GND	Ground
	3	GND	Ground

Table 4-11: Pinout power connector

4.13 Pin Assignment of Expansion Bus J9

Top view	Pin	Name	Function
	1	GND	Ground
	2	GND	Ground
	3	SD0	Data Bit 0
	4	SD1	Data Bit 1
	5	SD2	Data Bit 2
	6	SD3	Data Bit 3
	7	SD4	Data Bit 4
	8	SD5	Data Bit 5
	9	SD6	Data Bit 6
	10	SD7	Data Bit 7
	11	GND	Ground
	12	GND	Ground
	13	SA0	Address Bit 0
	14	SA1	Address Bit 1
	15	SA2	Address Bit 2
	16	SA3	Address Bit 3
	17	GND	Ground
	18	GND	Ground
	19	IOR	I/O Read Signal
	20	IOW	I/O Write Signal
	21	IOCHRDY	I/O Channel Ready
	22	RSTOUT	Reset Output
	23	GND	Ground
	24	GND	Ground
	25	CS1	Chip Select Output 1
	26	CS2	Chip Select Output 2
	27	CS3	Chip Select Output 3
	28	CS4	Chip Select Output 4
	29	GND	Ground
	30	GND	Ground
	31	INT1	Interrupt Input 1
	32	INT2	Interrupt Input 2
	33	INT3	Interrupt Input 3
	34	INT4	Interrupt Input 4
	35	INT5	Interrupt Input 5
	36	---	Not connected
	37	GND	Ground
	38	GND	Ground
	39	CLKOUT	Clock Output
	40	GND	Ground

Table 4-12: Pinout expansion bus

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1.0	2004-08-30	first version	WBU

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