

NetDCU9

Hardware

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1 Arrangement of Connectors

Figure 1.1: Top View

J10

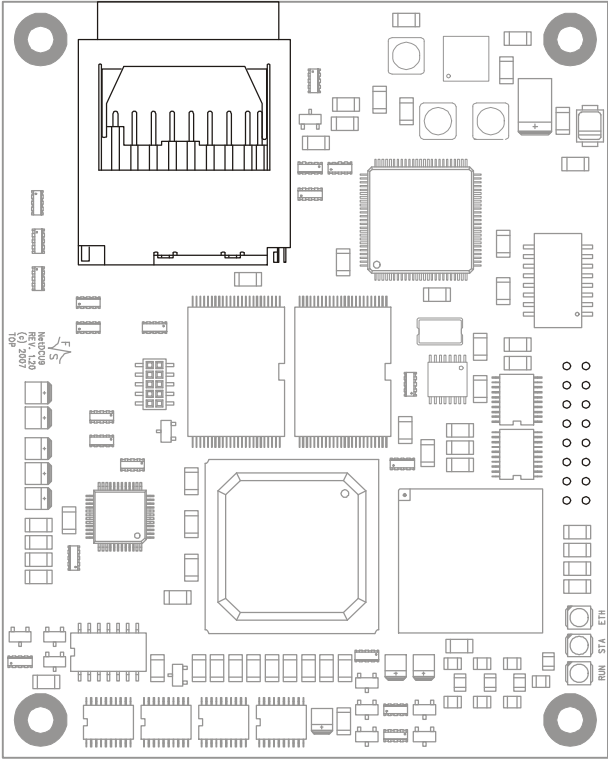
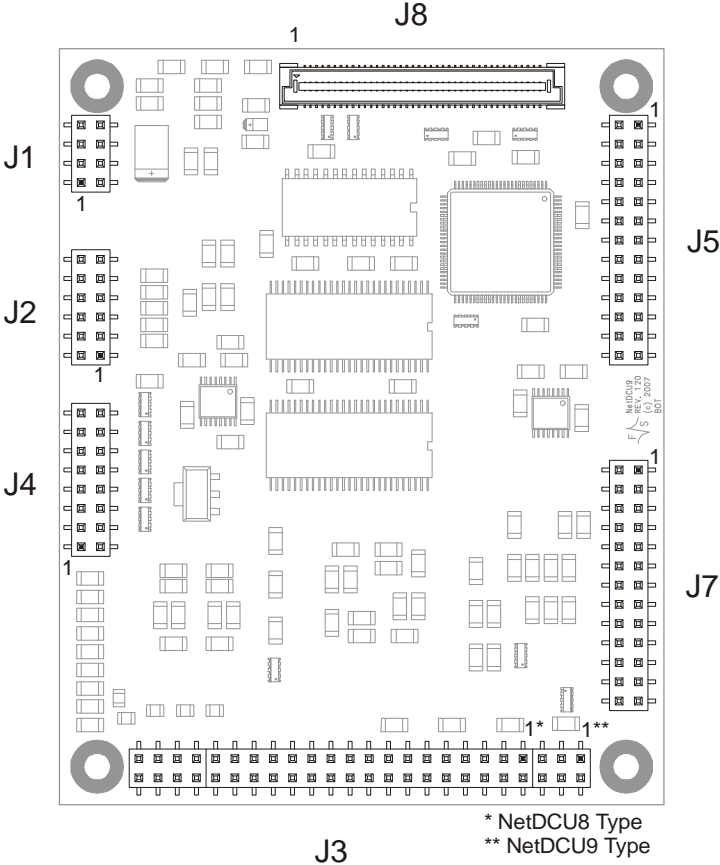


Figure 1.2: Bottom View



2 Connectors

2.1 Counting of the connector pins

All connections prepared for two-row connectors on the Net-DCU9 are treated as follow.

The row with pin 1 contains all odd-numbered pins (1, 3, 5, 7, etc.), and, corresponding to this, the row without pin 1 contains all even-numbered pins (2, 4, 6, 8, etc.).

2.2 J1 Power Supply

J1 Power Supply	
Pin	Function
1	+3V ... +15V / max. 2A DC (CFL- Converter)
2	-
3	+5V \pm 5% DC at max. 0,6A (*)
4	+5V \pm 5% DC at max. 0,6A (*)
5	+3V...+3,6V DC (Battery buffering RTC) (**)
6	-
7	GND (Ground Power Supply)
8	GND (Ground Power Supply)

(*) \Rightarrow No Display connected.

(**) \Rightarrow Can be left out depending on application.

2.3 J2 Ethernet Interface

J2 Ethernet Interface		
Pin	Signal	Function
1	RxD	Pin 6 of RJ45 connector
2	RxD	Pin 3 of RJ45 connector
3	- - -	
4	- - -	
5	- - -	
6	- - -	
7	TxD	Pin 2 of RJ45 connector
8	TxD	Pin 1 of RJ45 connector
9	GND	Signal Ground
10	V _{CC}	+5V DC
11	- - -	
12	- - -	

(- - -) ⇒ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!

2.4 J2 Serial RS232 Port A

J2 serial RS232 port 1			
Pin	Signal	Function	I/O
1	---		
2	---		
3	RxD1	Received Data	I
4	RTS1	Request To Send	O
5	TxD1	Transmitted Data	O
6	CTS1	Clear To Send	I
7	---		
8	---		
9	GND	Signal Ground	Power
10	V _{CC}	+5V DC	Power
11	---		
12	---		

(- - -) ⇒ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!

2.5 J2 CAN Interface

J2 CAN Interface			
Pin	Signal	Function	I/O
1	---		
2	---		
3	---		
4	---		
5	---		
6	---		
7	---		
8	---		
9	GND	Signal Ground	Power
10	V _{CC}	+5V DC	Power
11	CAN-RxD	Receive signal	I
12	CAN-TxD	Transmit signal	O

(- - -) ⇒ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!

Note:

The two CAN signals can NOT be connected directly to the CAN bus. You need a special interface logic to do this. Take a look at the following to examples to get an idea how to connect the CAN bus.

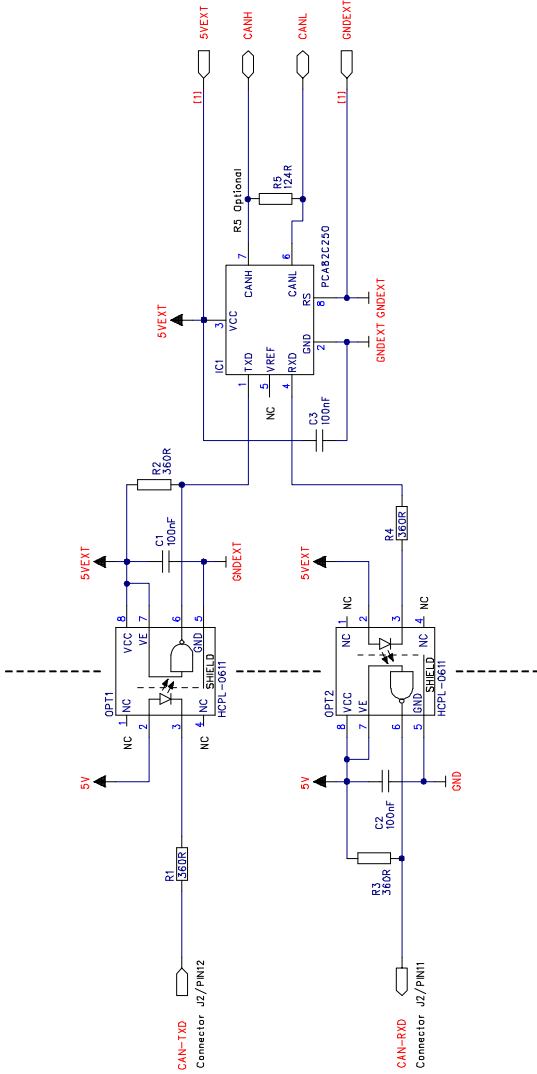
2.5.1 Example CAN-Interface type 1

The following schematic shows the needed interface between NetDCU9 and CAN bus. It has no galvanic isolation.

2.5.2 Example CAN-Interface type 2

The following schematic shows the needed interface between NetDCU8 and CAN bus. It has galvanic isolation.

Galvanic Isolation



Galvanic Isolation

2004	Tag	Name	Bezeichnung	Besteht aus
04.03.04	G. Scholz		CAN-INTERFACE TYP 2	1 Blatt
			NETDDBE CAN-Interface	Blatt-Nr.
				1
				Version
				04.03.2004
				1,00



2.6 J3 Display Interface

2.6.1 NetDCU9 Style Display Interface

J3 Display-Interface		
Pin	Signal	Function
1	FPD16	Flat Panel Data 16
2	FPD17	Flat Panel Data 17
3	FPD8	Flat Panel Data 8
4	FPD9	Flat Panel Data 9
5	FPD0	Flat Panel Data 0
6	FPD1	Flat Panel Data 1
7	GND	Signal Ground
8	FPD19	Flat Panel Data 19
9	FPD18	Flat Panel Data 18
10	FPD15	Flat Panel Data 15
11	FPD14	Flat Panel Data 14
12	FPD13	Flat Panel Data 13
13	FPD12	Flat Panel Data 12
14	GND	Signal Ground
15	FPD5	Flat Panel Data 5
16	FPD4	Flat Panel Data 4
17	FPD3	Flat Panel Data 3
18	FPD2	Flat Panel Data 2
19	FPD11	Flat Panel Data 11

J3 Display-Interface		
Pin	Signal	Function
20	FPD10	Flat Panel Data 10
21	FPD7	Flat Panel Data 7
22	FPD6	Flat Panel Data 6
23	GND	Signal Ground
24	V _{E EK}	+V _{E EK} (*)
25	FPSHIFT	Data clock pulse
26	FPFRAME	Frame Impulse
27	FPRDY	Display data valid signal
28	FPLINE	Line Impulse
29	DEN	Display ON
30	GND	Signal Ground
31	V _{L CD}	Power supply LCD 5V/3.3V
32	---	NC
33	---	NC
34	GND	Signal Ground
35	---	NC
36	V _{C FL}	Max. +12V for CFL converter
37	FPD20	Flat Panel Data 20
38	FPD21	Flat Panel Data 21
39	FPD22	Flat Panel Data 22
40	FPD23	Flat Panel Data 23
41	AGND	Signal Ground VGA-Interface
42	AGND	Signal Ground VGA-Interface

J3 Display-Interface		
Pin	Signal	Function
43	RED	Signal RED VGA-Interface
44	GREEN	Signal GREEN VGA-Interface
45	BLUE	Signal BLUE VGA-Interface
46	HCRT	Signal HCRT VGA-Interface
47	VCRT	Signal VCRT VGA-Interface
48	- - -	NC

(*) ⇒ Software controlled output voltage from 0V to +3.3V

2.6.2 NetDCU8 Style Display Interface

J3 Display Interface		
Pin	Signal	Function
1	GND	Signal Ground
2	R1	Red Bit 1
3	R0	Red Bit 0 (LSB)
4	G5	Green Bit 5 (MSB)
5	G4	Green Bit 4
6	G3	Green Bit 3
7	G2	Green Bit 2
8	GND	Signal Ground
9	B3	Blue Bit 3
10	B2	Blue Bit 2
11	B1	Blue Bit 1
12	B0	Blue Bit 0 (LSB)
13	G1	Green Bit 1
14	G0	Green Bit 0 (LSB)
15	B5	Blue Bit 5 (MSB)
16	B4	Blue Bit 4
17	GND	Signal Ground
18	V _{E EK}	(*)
19	CLP	Data clock pulse
20	FRP	Frame Impulse
21	M	Display data valid signal

J3 Display Interface		
Pin	Signal	Function
22	LIP	Line Impulse
23	DEN	Display ON
24	GND	Signal Ground
25	V _{LCD}	Power supply LCD +5V (+3,3V)
26	--	NC
27	--	NC
28	GND	Signal Ground
29	--	NC
30	V _{CFL}	Max. +12V for CFL converter
31	R2	Red Bit 2
32	R3	Red Bit 3
33	R4	Red Bit 4
34	R5	Red Bit 5 (MSB)

(*) ⇒ software adjustable output voltage 0V...+3,3V.

2.6.3 J3 LCD Connection

J3 Typ NetDCU9	Color Passive (CSTN)		Color Active (TFT)		
	8 bit	12 bit	18 bit	24 bit	
FPPFRAME	FRAME (VSYNC)				
FPLINE	LINE (HSYNC)				
FPSHIFT	SHIFT (CLK)				
FPRDY	MOD (M)		DRDY (DE)		
DEN	DEN (DISP OFF)		---		
FPD0	---	---	---	B0	
FPD1			B0	B1	
FPD2			B1	B2	
FPD3			B2	B3	
FPD4			B3	B4	
FPD5			B4	B5	
FPD6			B5	B6	
FPD7			B6	B7	
FPD8			---	---	G0
FPD9			---	---	G1
FPD10	D0	D0	G0	G2	
FPD11	D1	D1	G1	G3	
FPD12	D2	D2	G2	G4	
FPD13	D3	D3	G3	G5	
FPD14	D4	D4	G4	G6	
FPD15	D5	D5	G5	G7	
FPD16	---	---	---	R0	
FPD17	---	---	---	R1	
FPD18	D6	D6	R0	R2	
FPD19	D7	D7	R1	R3	
FPD20	---	D8	R2	R4	
FPD21		D9	R3	R5	
FPD22		D10	R4	R6	
FPD23		D11	R5	R7	
$V_{E\text{EK}}$ Contrast-Voltage		$V_{E\text{EK}}$		---	

Contrast voltage for passive Displays must be provided externally (not generated on NetDCU9!).

2.7 J4 FS-Bus (8 bit Extension interface)

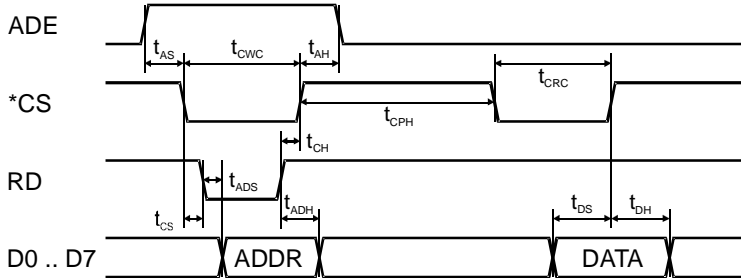
J4 parallel extension interface		
Pin	Signal	Function
1	D0	Data Bit D0, I/O (*)
2	D1	Data Bit D1, I/O (*)
3	D2	Data Bit D2, I/O (*)
4	D3	Data Bit D3, I/O (*)
5	D4	Data Bit D4, I/O (*)
6	D5	Data Bit D5, I/O (*)
7	D6	Data Bit D6, I/O (*)
8	D7	Data Bit D7, I/O (*)
9	V _{IO}	IO Voltage, +3,3V or +5V (***)
10	RD	Read, output, active High (*)
11	NCS	Chip Select, output, active Low (*)
12	ADE	Address Enable, output, active High (*)
13	NIRQ	Interrupt, input, active Low (*)
14	NRES	Reset, input, active Low (**)
15	V _{EXT}	External +V _{EEK} voltage for LCD
16	GND	Signal Ground

(*) ⇒ Input/output with Pull Up resistor 4,7k• at +3,3V or +5V (-> configuration parallel port).

(**) ⇒ Input with Pull Up resistor 3k• at +3,3V.

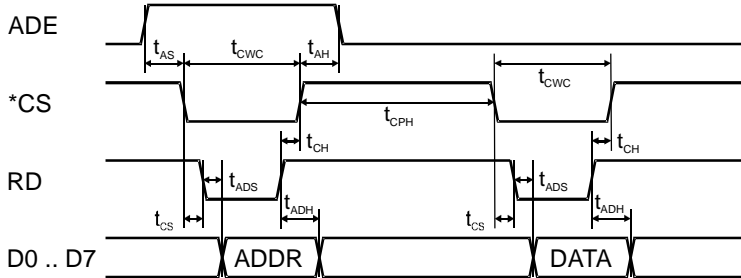
(***) ⇒ See also configuration of the parallel port.

2.7.1 FS-Bus Timing Read Cycle



Item	Symbol	Min.	Typ.	Max.	Unit
ADE set up time	t_{AS}	20	-	-	ns
ADE hold time	t_{AH}	20	-	-	ns
CS cycle write time	t_{CWC}	180	-	-	ns
CS set up time	t_{CS}	0	-	-	ns
CS hold time	t_{CH}	0	-	-	ns
ADDR set up time	t_{ADS}	2	-	-2	ns
ADDR hold time	t_{ADH}	0	-	-	ns
CS pulse high width	t_{CPH}	100	-	-	ns
CS cycle read time	t_{CRC}	180	-	-	ns
DATA set up time	t_{DS}	25	-	-	ns
DATA hold time	t_{DH}	0	-	-	ns

2.7.2 FS-Bus Timing Write Cycle



Item	Symbol	Min.	Typ.	Max.	Unit
ADE set up time	t_{AS}	20	-	-	ns
ADE hold time	t_{AH}	20	-	-	ns
CS cycle write time	t_{CWC}	180	-	-	ns
CS set up time	t_{CS}	0	-	-	ns
CS hold time	t_{CH}	0	-	-	ns
ADDR set up time	t_{ADS}	2	-	-2	ns
ADDR hold time	t_{ADH}	0	-	-	ns
CS pulse high width	t_{CPH}	100	-	-	ns

2.8 J5 Matrix Keyboard

J5 Matrix Keyboard			
Pin	Signal	Function	I/O
1	---		
2	GPIO7	Row 7 – Matrix key	O
3	GPIO6	Row 6 - Matrix key	O
4	GPIO5	Row 5 - Matrix key	O
5	GPIO4	Row 4 - Matrix key	O
6	GPIO3	Row 3 - Matrix key	O
7	GPIO2	Row 2 - Matrix key	O
8	GPIO1	Row 1 - Matrix key	O
9	GPIO0	Row 0 - Matrix key	O
10	GPIO9	Column 8 - Matrix key	I (*)
11	GPIO10	Column 9 - Matrix key	I (*)
12	---		
13	GPIO11	Column 10 - Matrix key	I (*)
14	---		
15	GPIO12	Column 11 - Matrix key	I (*)
16	GND	Signal Ground	Power
17	KBIN0	Column 0 .- Matrix key	I (*)
18	KBIN1	Column 1 - Matrix key	I (*)
19	KBIN2	Column 2 - Matrix key	I (*)
20	KBIN3	Column 3 - Matrix key	I (*)
21	KBIN4	Column 4 - Matrix key	I (*)

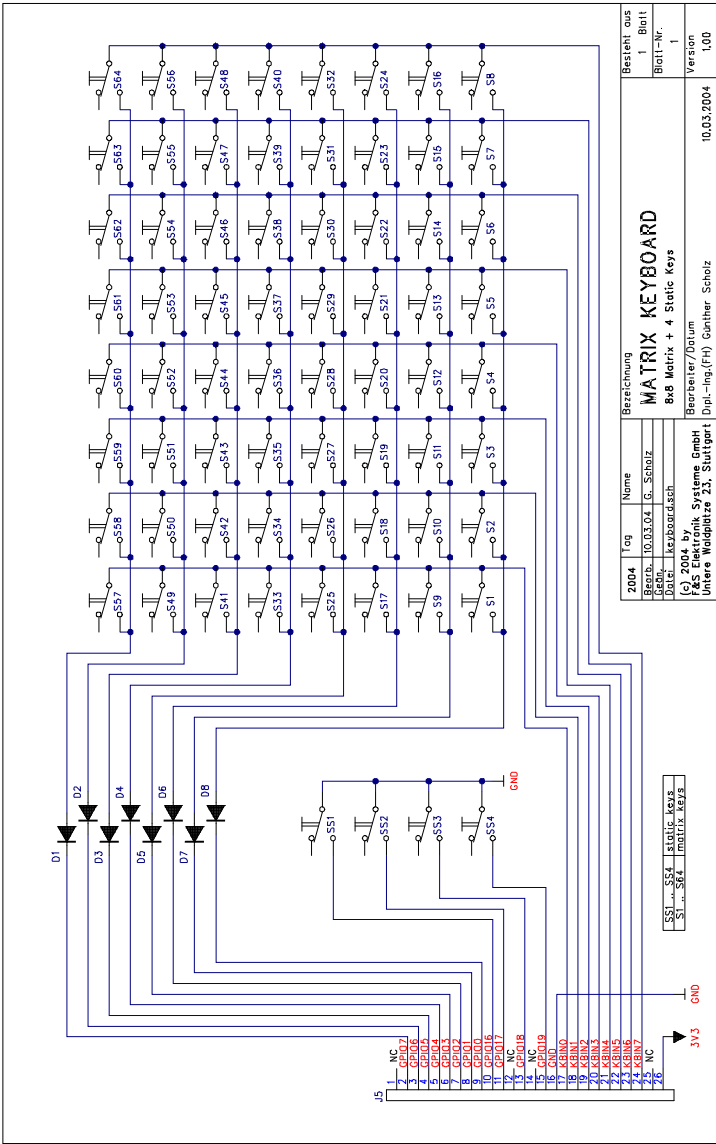
J5 Matrix Keyboard			
Pin	Signal	Function	I/O
22	KBIN5	Column 5 - Matrix key	I (*)
23	KBIN6	Column 6 – Matrix key	I (*)
24	KBIN7	Column 7 – Matrix key	I (*)
25	V _{CC}	+5V DC	Power
26	V _{DD}	+3,3V (0,1A max.) DC	Power

- (*) ⇒ Note: I/O pins have pull-up resistor 4,7k• to +3,3V.
 (- - -) ⇒ Please note: These pins carry active signals. *Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!*

All voltage levels of the input and output signals must be compatible to the LVC (3,3V) specification !

2.8.1 Matrix Keyboard example connection

The following schematic show the connection of a keyboard with a 8x8 matrix and four static keys.



2004		Name		Bezeichnung		Bezieht aus	
Berch.	10.03.04	G. Scholz		MATRIX KEYBOARD		1 Blatt	
Dat.	10.03.04	G. Scholz		8x8 Matrix + 4 Static Keys		Blatt-Nr.	
Verf.	10.03.04	G. Scholz		ES Elektronik Systeme GmbH		Version	1
Untere Waldplätze 23, Stuttgart				Dipl.-Ing.(FH) Gunter Scholz			10.03.2004

S51...S56
S57...S64
matrix-keys

2.9 J5 I/O interface

J5 I/O Interface			
Pin	Signal	Function	I/O
1	GPIO8	Interrupt	I/O (*)
2	GPIO7	IO-Port 7	I/O
3	GPIO6	IO-Port 6	I/O
4	GPIO5	IO-Port 5	I/O
5	GPIO4	IO-Port 4	I/O
6	GPIO3	IO-Port 3	I/O
7	GPIO2	IO-Port 2	I/O
8	GPIO1	IO-Port 1	I/O
9	GPIO0	IO-Port 0	I/O
10	GPIO9	IO-Port 9	I/O (*)
11	GPIO10	IO-Port 10	I/O (*)
12	---		
13	GPIO11	IO-Port 11	I/O (*)
14	---		
15	GPIO12	IO-Port 12	I/O (*)
16	GND	Signal Ground	Power
17	KBIN7	Input-Port 7	I (*)
18	KBIN6	Input-Port 6	I (*)
19	KBIN5	Input-Port 5	I (*)
20	KBIN4	Input-Port 4	I (*)
21	KBIN3	Input-Port 3	I (*)

J5 I/O Interface			
Pin	Signal	Function	I/O
22	KBIN2	Input-Port 2	I (*)
23	KBIN1	Input-Port 1	I (*)
24	KBIN0	Input-Port 0	I (*)
25	V _{CC}	+5V DC	Power
26	V _{DD}	+3,3V (0,1A max.) DC	Power

- (*) ⇒ Note: I/O pins have pull-up resistor 4,7k• at +3,3V.
 (- - -) ⇒ Please note: These pins carry active signals. *Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!*

All voltage levels of the input and output signals must be compatible to the LVC (3,3V) specification !

2.10 J5 serial RS232 port B

J5 serial RS232 Interface			
Pin	Signal	Function	I/O
1	- - -		
.	- - -	.	.
.	.	.	.
.	.	.	.
12	RxD2	Received Data	I
13	- - -		
14	TxD2	Transmitted Data	O
15	- - -		
16	GND	Signal Ground	Power
.	- - -	.	.
.	.	.	.
.	.	.	.
25	V _{CC}	+5V DC	Power
26	V _{DD}	+3,3V (0,1A max.) DC	Power

(- - -) ⇒ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!

2.11 J7 serial RS232 port C

J7 serial RS232 Interface			
Pin	Signal	Function	I/O
1	---		
.	---	.	.
.	.	.	.
.	.	.	.
9	RxD3	Received Data	I
10	TxD3	Transmitted Data	O
.	---	.	.
.	.	.	.
.	.	.	.
13	V _{CC}	+5V DC	Power
14	GND	Signal Ground	Power
.	---	.	.
.	.	.	.
.	.	.	.
19	V _{DD}	+3,3V (0,1A max.) DC	Power
.	---	.	.
.	.	.	.
.	.	.	.

(- - -) ⇒ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!

2.12 J7 Touchpanel Interface

J7 Touchpanel Interface		
Pin	Signal	Function
1	- - -	
.	- - -	.
.	.	.
.	.	.
13	V _{CC}	+5V DC
14	GND	Signal Ground
15	TOUCH X+	X- Voltage Measurement
16	TOUCH Y+	Y- Voltage Measurement
17	TOUCH X-	X- Set Active Measurement
18	TOUCH Y-	Y- Set Active Measurement
19	V _{DD}	+3,3V DC
20	GND	Signal Ground
.	- - -	.
.	.	.
.	.	.
26	- - -	

(- - -) ⇒ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!

2.13 J7 USB Interface 1

J7 USB Interface 1		
Pin	Signal	Function
1	---	
.	---	.
.	.	.
13	V _{CC}	+5V DC
14	GND	Signal Ground
.	---	.
.	.	.
19	V _{DD}	+3,3V DC
20	GND	Signal Ground
21	---	
22	---	
23	M2	USB negative (Host)
24	P2	USB positive (Host)
25	---	
26	W2	USB power supply

(- - -) ⇒ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!

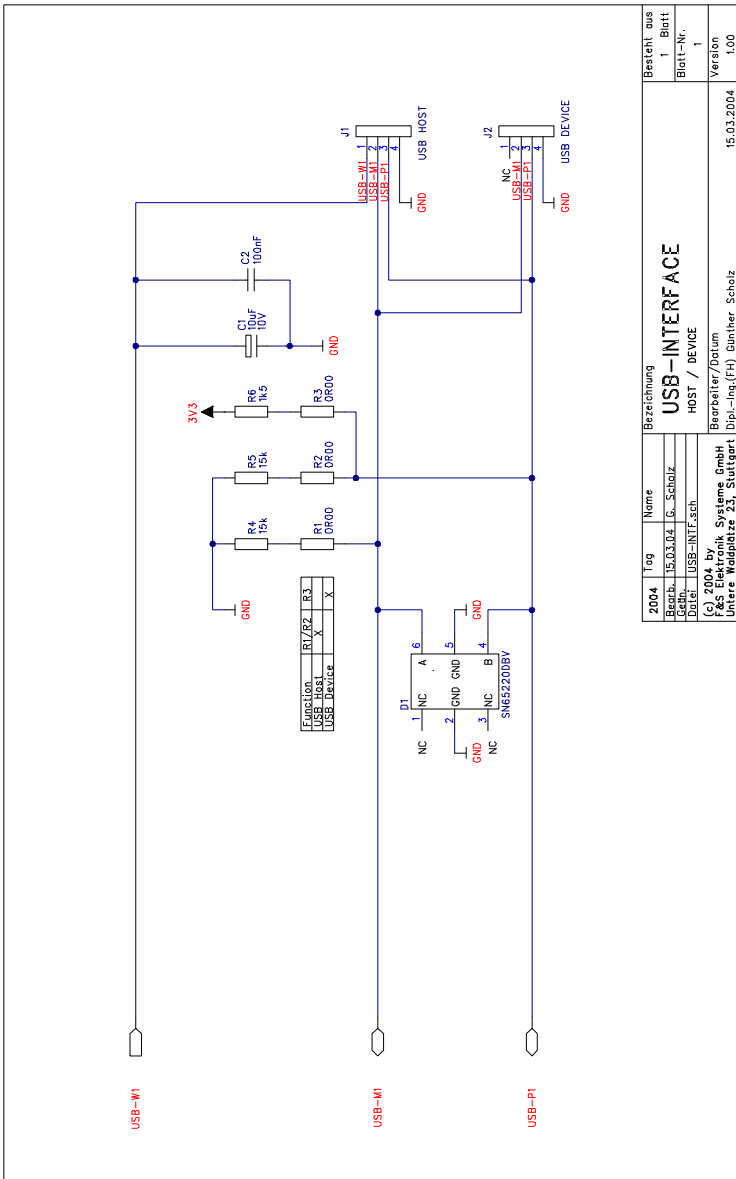
2.14 J7 USB Interface 2

J7 USB Interface 2		
Pin	Signal	Function
1	---	
.	---	
.	.	
13	V _{CC}	+5V DC
14	GND	Signal Ground
.	---	.
.	.	.
19	V _{DD}	+3,3V DC
20	GND	Signal Ground
21	M1	USB negative (Device)
22	P1	USB positive (Device)
23	---	
24	---	
25	W1	USB power in (Device)
26	---	

(- - -) ⇒ Please note: These pins carry active signals. Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!

2.15 Example USB Interface (Host/Device)

The following schematic shows the usage of the USB host or device interface (next page).



2004	Tag	Name	Bezeichnung	Besteht aus
			USB-INTERFACE	1 Blatt
			HOST / DEVICE	Blatt-Nr.
				1
				Version
				1.00
			Bearbeiter/Datum	
			Dipl.-Ing.(FH) Günther Scholz	15.03.2004
			FGS Elektronik Systeme GmbH	
			Untere Waldplätze 23, Stuttgart	

2.16 J7 Audio Interface

J7 Audio Interface		
Pin	Signal	Function
1	LINEOUT-L	Line out left channel
2	LINEOUT-R	Line out right channel
3	GND	Signal Ground
4	LINEIN-L	Line in left channel
5	LINEIN-R	Line in right channel
6	GND	Signal Ground
7	MIC	Microphone input
8	MICGND	Signal Ground (Microphone)
.	---	.
.	.	.
13	V _{CC}	+5V DC
14	GND	Signal Ground
.	---	.
.	.	.
19	V _{DD}	+3.3V DC
20	GND	Signal Ground
.	---	.
.	.	.
26	---	

(- - -) ⇒ Please note: These pins carry active signals. *Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!*

2.17 J7 Analog Input

J7 analog Input		
Pin	Signal	Function
1	---	
.	---	.
.	.	.
9	AD2	Analog Input 2 (*) / altern. RxD3
10	AD3	Analog Input 3 (*) / altern. TxD3
11	AD0	Analog Input 0 (*)
12	AD1	Analog Input 1 (*)
13	V _{CC}	+5V DC
14	GND	Signal Ground
.	---	.
.	.	.
19	V _{DD}	+3,3V DC
20	GND	Signal Ground
.	---	.
.	.	.
26	---	

- (*) ⇒ Input Voltage: 0V to 3,3V
 AD-Converter Resolution: 10 Bit, Error ±1 LSB
 47k• Pull Down resistor to GND.
- (- - -) ⇒ Please note: These pins carry active signals. *Any invalid connection of these signals may result in unexpected behavior or even destruction of the component!*

2.18 J8 Extension Interface

The NetDCU9 has an extension interface for CompactFlash (PCMCIA), ATA, and memory bus. For the connections see the additional application note.

Correspond connector to J8: AMP C177984-3

J8 Extension Interface		
Pin	Signal	Function
1	VCC	+3.3V
2	GND	Signal Ground
3	VCC	+3.3 V
4	RD/WR	Read/Write Signal
5	VCC	+3.3 V
6	/WE	Write Enable
7	/OE	Output Enable
8	SCL	I ² C Clock
9	SDA	I ² C Data
10	GND	Signal Ground
11	PCMIO5	PCMCIA Control
12	PCMIO4	PCMCIA Control
13	PCMIO3	PCMCIA Control
14	PCMIO2	PCMCIA Control
15	PCMIO1	PCMCIA Control
16	- - -	
...	- - -	

J8 Extension Interface		
Pin	Signal	Function
19	--	
20	GND	Signal Ground
21	---	
...	---	
27	---	
28	PSKTSEL	PCMCIA Signal
29	/PREG	PCMCIA Signal
30	GND	Signal Ground
31	PWAIT	PCMCIA Signal
32	/PIOIS16	PCMCIA Signal
33	/PCE2	PCMCIA Signal
34	/PCE1	PCMCIA Signal
35	/PIOW	PCMCIA Signal
36	/PIOR	PCMCIA Signal
37	/PWE	PCMCIA Signal
38	/POE	PCMCIA Signal
39	D15	Data Bit 15
40	GND	Signal Ground
41	D14	Data Bit 14
42	D13	Data Bit 13
43	D12	Data Bit 12
44	D11	Data Bit 11
45	D10	Data Bit 10

J8 Extension Interface		
Pin	Signal	Function
46	D9	Data Bit 9
47	D8	Data Bit 8
48	D7	Data Bit 7
49	D6	Data Bit 6
50	GND	Signal Ground
51	D5	Data Bit 5
52	D4	Data Bit 4
53	D3	Data Bit 3
54	D2	Data Bit 2
55	D1	Data Bit 1
56	D0	Data Bit 0
57	A20	Address Bit 20
58	A19	Address Bit 19
59	A18	Address Bit 18
60	GND	Signal Ground
61	A17	Address Bit 17
62	A16	Address Bit 16
63	A15	Address Bit 15
64	A14	Address Bit 14
65	A13	Address Bit 13
66	A12	Address Bit 12
67	A11	Address Bit 11
68	A10	Address Bit 10

J8 Extension Interface		
Pin	Signal	Function
69	A9	Address Bit 9
70	GND	Signal Ground
71	A8	Address Bit
72	A7	Address Bit 7
73	A6	Address Bit 6
74	A5	Address Bit 5
75	A4	Address Bit 4
76	A3	Address Bit 3
77	A2	Address Bit 2
78	A1	Address Bit 1
79	A0	Address Bit 0
80	GND	Signal Ground

2.19 J8 Video Input

The NetDCU9 has a digital video interface. For the connections see the additional application note.

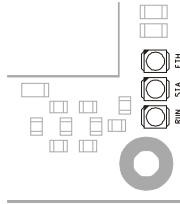
J8 Extension Interface		
Pin	Signal	Function
1	VCC	+3.3V
2	GND	Signal Ground
3	VCC	+3.3 V
4	---	
5	VCC	+3.3 V
6	---	
7	---	
8	SCL	I ² C Clock
9	SDA	I ² C Data
10	GND	Signal Ground
11	--	
...	--	
15	--	
16	VD7	Video Data
17	VD6	Video Data
18	VD5	Video Data
19	VD4	Video Data
20	GND	Signal Ground
21	VD3	Video Data

J8 Extension Interface		
Pin	Signal	Function
22	VD2	Video Data
23	VD1	Video Data
24	VD0	Video Data
25	VVSYNC	Video Vsync
26	VHREF	Video Hsync
27	VCLK	Video Clock
28	- - -	
...	- - -	
79	- - -	
80	GND	Signal Ground

3 Status Indicators

The NetDCU9 comprises three LED status indicators. They are located on the top side of the board in the bottom right corner

Figure 3.1: Status LED



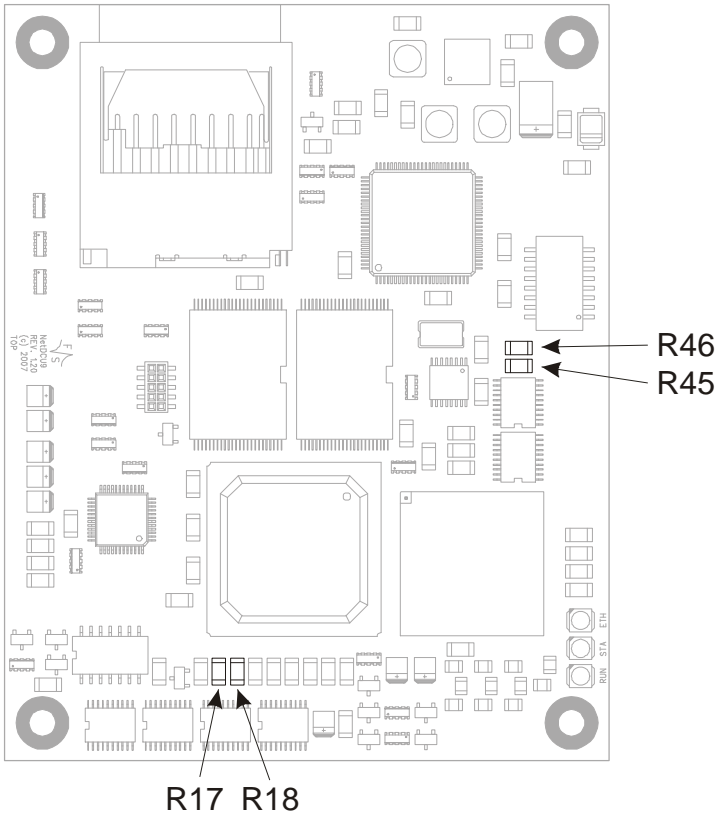
The following status information is displayed:

Status LED		
LED	Signal	Description
1	RUN	CPU in Run-Mode
2	STA	Status indicator(see SW documentation)
3	ETH	Ethernet: connection online

4 Configuration NetDCU9

By hardware-configuration of NetDCU9 some settings for peripheral devices can be done.

Figure 4.1: Top View



4.1 Configuration Display Interface

Power supply for the display and display type are configured with jumpers

Configuration	Rxx
LCD Power Supply +5V	R17
LCD Power Supply +3,3V (*)	R18

(*) Default Setting

Rxx Jumper, 0Ω Resistor Type 1206

4.2 Configuration parallel System Interface

The voltage level of the parallel port (J4) can set by jumpers.

Configuration	Rxx
5V I/O Parallel Interface (*)	R45
3.3V I/O Parallel Interface	R46

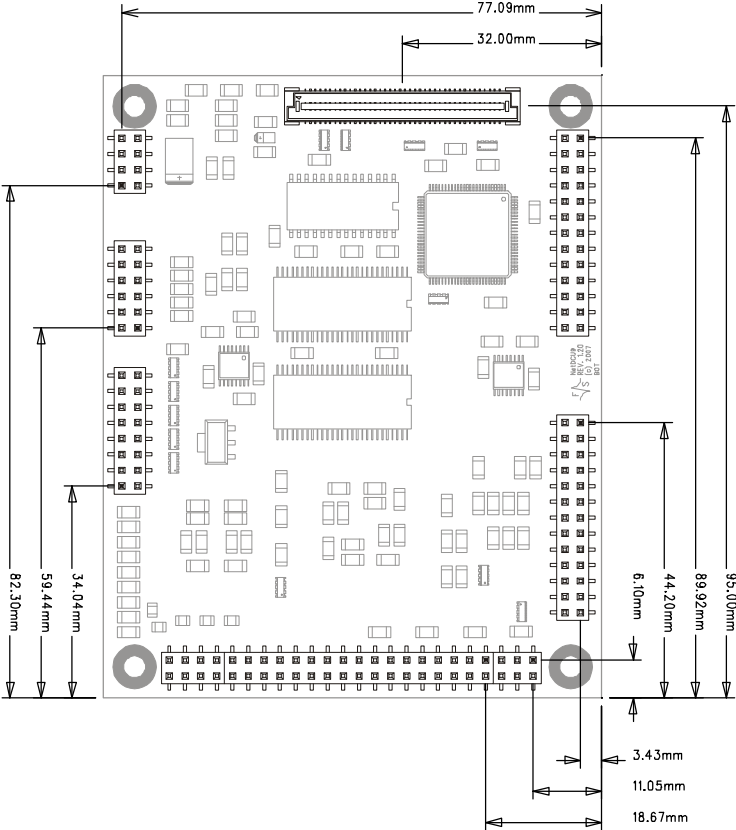
(*) Default Setting

Rxx Jumper, 0Ω Resistor, Type 1206

5 Dimensions NetDCU9

Board thickness:	1.6 mm
Height of parts on top side:	5.0 mm
Height on parts on bottom side:	2.5 mm
Pin grid of connectors	2.54 mm
Mounting hole diameter	3.4 mm

Figure 5.2 Bottom View



All values can have tolerances of $\pm 0.5\text{mm}$.

6 Technical Data NetDCU9

Power Supply:	+5V _{DC} / ±5%
Current Consumption:	<1A (excluding Display)
Touch-Screen:	4 wire, analog resistive
Keyboard:	8 x 12 matrix keyboard alternative Digital-I/O
Inputs/Outputs:	max. 21 I/O ports alternative matrix keyboard 16 bit expansion bus (PCMCIA/CF) 8 bit FS-Bus (hw extension bus) 1x SD-Card-Slot 2x (4x)(*) analog input, 10 bit
Interfaces:	3x RS232 (1x with RTS/CTS) 2x USB1.1 (1x Host/Device) 1x Ethernet 10/100 Mbit (Option) 1x CAN2.0 (Option)
LCD Interface:	TFT: up to 1280x1024 Pixel 256 / 65536 colors
RAM:	64 MByte SDRAM Optional: 128 MByte
Flash:	64 MByte Flash Optional: 128 MByte
CPU:	PXA270 520Mhz
Temperature:	0°C . . . +70°C
Dimensions:	100 x 80 x 11 mm (l x w x d)
Weight:	60 gr.

(*) ⇒ Note: If you want to use 4 analog inputs then serial line 3 can not be used.

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Hinweis
Änderungen, die dem technischen Fortschritt dienen, vorbehalten.



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