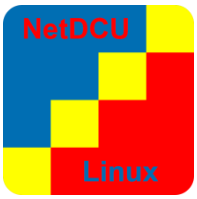
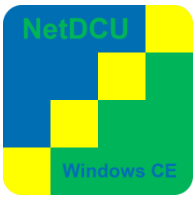
Hardware Documentation

NetDCU14

Version 1.02
2014-01-28





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About This Document

This document describes the hardware of the NetDCU14.

The latest version of this document can be found at http://www.fs-net.de.

History

Date	V	Platform	A,M,R	Chapter	Description	Au
2012-08-27	0.99	NetDCU14	A	-	Hardware documentation, preliminary	DB
2012-10-18	1.00	NetDCU14	M	2.3	Corrected J1 pin layout	DB
2012-11-23	1.01	NetDCU14	A	2.10	Added connector type	DB
2013-01-28	1.02	NetDCU14	M	2.6	deleted J5 pin 1 pull-up	DB

V	Version
A,M,R	Added, Modified, Removed
Au	Author

Table of Contents

1 Arrangement of Connectors

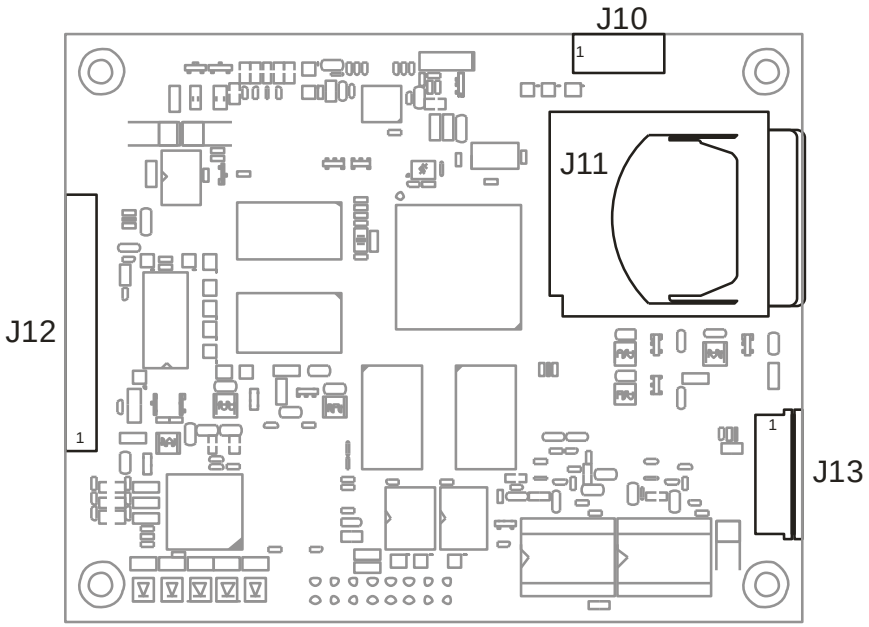


Figure 1.1: Top View

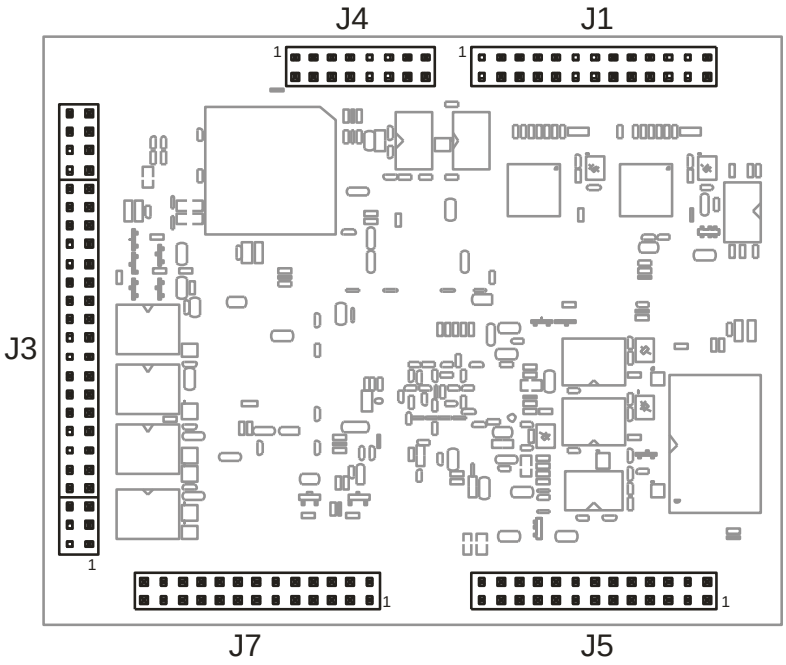


Figure 1.2: Bottom View

2 Connectors

2.1 Counting of the connector pins

All connections prepared for two-row connectors on the NetDCU14 are treated as follows. 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.).
Pin 1 is marked with a small triangle on the PCB

2.2 Signal levels

The signal level of the I/O pins normally is 3.3V. Exceptions are RS232, Ethernet, CAN, Audio. USB, VGA, and LVDS

2.3 J1

J1 on NetDCU14 combines J1 and J2 on older NetDCUs

J1					
Pin	**NetDCU 5.2/6/8**	**NetDCU 9/10/11**	**Signal**	**Function**	**I/O**
1	J2/2	J2/2	RX1+	ETH1-RX (Pin 3 of RJ45 connector)	
2	J2/1	J2/1	RX1-	ETH1-RX (Pin 6 of RJ45 connector)	
3	J2/4	J2/4	RTS2	Request To Send COM2	O
4	J2/3	J2/3	RXD2	Receive Data COM2	I
5	J2/6	J2/6	CTS2	Clear To Send COM2	
6	J2/5	J2/5	TXD2	Transmit Data COM2	O
7	J2/8	J2/8	TX1+	ETH-TX (Pin 1 of RJ45 connector)	
8	J2/7	J2/7	TX1-	ETH-TX (Pin 2 of RJ45 connector)	
9	J2/10	J2/10	V50-OUT	+5V DC Out	Power O
10	J2/9	J2/9	GND	Signal Ground	Power
11	J2/12	J2/12	CAN1-TxD	CAN1 Transmit signal (5V level)	O
12	J2/11	J2/11	CAN1-RxD	CAN1 Receive signal (5V level)	I
13		J2/14	CAN2-TxD	CAN2 Transmit signal (5V level)	O
14		J2/13	CAN2-RxD	CAN2 Receive signal (5V level)	I
15			RX2+	ETH2-RX (Pin 3 of RJ45 connector)	
16			RX2-	ETH2-RX (Pin 6 of RJ45 connector)	
17			TX2+	ETH2-TX (Pin 1 of RJ45 connector)	
18			TX2-	ETH2-TX (Pin 2 of RJ45 connector)	
19	J1/1	J1/1	VCFL-IN	+5V … +20V Input / max. 2A DC (CFL- Converter)	Power I
20		J1/2	NC	NC	
21	J1/2	J1/3	V50-IN	+5V ±5% DC Input	Power I
22		J1/4	V50-IN	+5V ±5% DC Input	Power I
23	J1/3	J1/5	VBAT	+3V...+3,6V DC Input (RTC battery backup) (*)	Power I
24		J1/6	NC	NC	
25	J1/4	J1/7	GND	GND (Ground Power Supply)	Power
26		J1/8	GND	GND (Ground Power Supply)	Power

2.3.1 J1 Power Supply

J1			
Pin	Signal	Function	I/O
19	VCFL-IN	+5V … +20V Input / max. 2A DC (CFL-Converter)	Power I
21	V50-IN	+5V ±5% DC Input	Power I
22	V50-IN	+5V ±5% DC Input	Power I
23	VBAT	+3V...+3,6V DC Input (RTC battery back-up) (*)	Power I
25	GND	GND (Ground Power Supply)	Power
26	GND	GND (Ground Power Supply)	Power

VBAT is not required for operation and can be left out if RTC battery backup is not needed.

2.3.2 J1 Ethernet Interface 1

J1			
Pin	Signal	Function	I/O
1	RX1+	ETH1-RX (Pin 3 of RJ45 connector)	
2	RX1-	ETH1-RX (Pin 6 of RJ45 connector)	
7	TX1+	ETH1-TX (Pin 1 of RJ45 connector)	
8	TX1-	ETH1-TX (Pin 2 of RJ45 connector)	

Connect directly to RJ45 connector

The intra pair mismatch of each differential pair should be <50 mil (1.27mm).
Please also refer our "Ethernet Routing Guidelines" on our web download area and refer the comments at our forum.

2.3.3 J1 Ethernet Interface 2 (Optional)

J1			
Pin	Signal	Function	I/O
15	RX2+	ETH2-RX (Pin 3 of RJ45 connector)	
16	RX2-	ETH2-RX (Pin 6 of RJ45 connector)	
17	TX2+	ETH2-TX (Pin 1 of RJ45 connector)	
18	TX2-	ETH2-TX (Pin 2 of RJ45 connector)	

Connect directly to RJ45 connector

The intra pair mismatch of each differential pair should be <50 mil (1.27mm).
Please also refer our "Ethernet Routing Guidelines" on our web download area and refer the comments at our forum.

2.3.4 J1 Serial RS232 Port COM2

J1			
Pin	Signal	Function	I/O
3	RTS2	Request To Send COM2	O
4	RXD2	Receive Data COM2	I
5	CTS2	Clear To Send COM2	I
6	TXD2	Transmit Data COM2	O
10	GND	Signal Ground	Power

RS232 level

2.3.5 J1 CAN Interface 1

J1			
Pin	Signal	Function	I/O
9	V50-OUT	+5V DC Out	Power O
10	GND	Signal Ground	Power
11	CAN1-TxD	CAN1 Transmit signal (5V level)	O
12	CAN1-RxD	CAN1 Receive signal (5V level)	I

Note:

The two CAN signals can NOT be connected directly to the CAN bus. You need a CAN transceiver to connect to the CAN bus. See starter kit schematics for an example

2.3.6 J1 CAN Interface 2 (Optional)

J1			
Pin	Signal	Function	I/O
9	V50-OUT	+5V DC Out	Power O
10	GND	Signal Ground	Power
13	CAN2-TxD	CAN2 Transmit signal (5V level)	O
14	CAN2-RxD	CAN2 Receive signal (5V level)	I

Note:

The two CAN signals can NOT be connected directly to the CAN bus. You need a CAN transceiver to connect to the CAN bus. See starter kit schematics for an example

2.4 J3

J3			
Pin	Signal	Function	
1	R0	Digital R0 (LSB)	O
2	R1	Digital R1	O
3	G0	Digital G0 (LSB)	O
4	G1	Digital G1	O
5	B0	Digital B0 (LSB)	O
6	B1	Digital B1	O
7	GND	Ground	Power
8	R3	Digital R3	O
9	R2	Digital R2	O
10	G7	Digital G7 (MSB)	O
11	G6	Digital G6	O
12	G5	Digital G5	O
13	G4	Digital G4	O
14	GND	Ground	Power
15	B5	Digital B5	O
16	B4	Digital B4	O
17	B3	Digital B3	O
18	B2	Digital B2	O
19	G3	Digital G3	O
20	G2	Digital G2	O
21	B7	Digital B7 (MSB)	O
22	B6	Digital B6	O
23	GND	Ground	Power
24	VEEK	BL dimming voltage (0..3.3V)	O
25	CLK	Digital CLK	O
26	VSYNC	Digital Vsync	O
27	DE	Digital Data Enable	O
28	HSYNC	Digital Hsync	O
29	DEN	Display On Signal	O
30	GND	Ground	Power
31	VLCD	Display voltage (3.3V/5V) set with Jumper J1 and J2	Power O
32	NC		

J3			
Pin	Signal	Function	
33	NC		
34	GND	Ground	Power
35	NC		
36	VCFL	Switched voltage from J1	Power O
37	R4	Digital R4	O
38	R5	Digital R5	O
39	R6	Digital R6	O
40	R7	Digital R7 (MSB)	O
41	GND	Ground	Power
42	GND	Ground	Power
43	ARED	Analog R	O
44	AGREEN	Analog G	O
45	ABLUE	Analog B	O
46	AHSYNC	Analog Hsync	O
47	AVSYNC	Analog Vsync	O
48	NC		

On the LVDS version a connector with 12 pins is mounted instead of 48 pins on position 37-48.

2.4.1 J3 Digital RGB (Not on LVDS version)

J3				
Pin	Signal	24bit Display	18bit Display	
1	R0	R0 (LSB)		
2	R1	R1		
3	G0	G0 (LSB)		
4	G1	G1		
5	B0	B0 (LSB)		
6	B1	B1		
7	GND	GND	GND	
8	R3	R3	R1	
9	R2	R2	R0 (LSB)	
10	G7	G7 (MSB)	G5 (MSB)	
11	G6	G6	G4	
12	G5	G5	G3	
13	G4	G4	G2	
14	GND	GND	GND	
15	B5	B5	B3	
16	B4	B4	B2	
17	B3	B3	B1	
18	B2	B2	B0 (LSB)	
19	G3	G3	G1	
20	G2	G2	G0 (LSB)	
21	B7	B7 (MSB)	B5 (MSB)	
22	B6	B6	B4	
23	GND	GND	GND	
24	VEEK			
25	CLK	CLK	CLK	
26	VSYNC	VSYNC	VSYNC	
27	DE	DE	DE	
28	HSYNC	HSYNC	HSYNC	
29	DEN			
30	GND	GND	GND	
31	VLCD	VLCD	VLCD	
34	GND	GND	GND	
36	VCFL			

J3				
Pin	Signal	24bit Display	18bit Display	
37	R4	R4	R2	
38	R5	R5	R3	
39	R6	R6	R4	
40	R7	R7 (MSB)	R5 (MSB)	

Digital RGB voltage can be 3.3V or 5V depending on configuration. See chapter 4.1 for jumper settings.

2.4.2 J3 Analog RGB (Optional)

J3			
Pin	Signal	Function	
41	GND	Ground	Power
42	GND	Ground	Power
43	ARED	Analog R	O
44	AGREEN	Analog G	O
45	ABLUE	Analog B	O
46	AHSYNC	Analog Hsync	O
47	AVSYNC	Analog Vsync	O

On the LVDS version a connector with 12 pins is mounted instead of 48 pins on position 37-48.

Connects to directly to VGA 15pin D-Sub connector.

2.5 J4 FS-Bus (8 bit Extension interface

J4 parallel extension interface			
Pin	Signal	Function	
1	D0	Data Bit D0, I/O	I/O *
2	D1	Data Bit D1, I/O	I/O *
3	D2	Data Bit D2, I/O	I/O *
4	D3	Data Bit D3, I/O	I/O *
5	D4	Data Bit D4, I/O	I/O *
6	D5	Data Bit D5, I/O	I/O *
7	D6	Data Bit D6, I/O	I/O *
8	D7	Data Bit D7, I/O	I/O *
9	VIO	IO Voltage Out, +3,3V / +5V	Power O
10	RD	Read, output, active High	O *
11	NCS	Chip Select, output, active Low	O *
12	ADE	Address Enable, output, active High	O *
13	NIRQ	Interrupt, input, active Low	I *
14	NRES	Reset, input, active Low	I
15	PWM	PWM Output	O
16	GND	Signal Ground	Power

*: Input/output with Pull Up resistor 4,7kΩ to VIO

FS-Bus voltage can be 3.3V or 5V depending on configuration. See chapter 4.2 for jumper settings.

2.6 J5

J5			
Pin	Signal	Function	I/O
1	I/O1	I/O1	I/O
2	I/O2	I/O2	I/O
3	I/O3	I/O3	I/O
4	I/O4	I/O4	I/O
5	I/O5	I/O5	I/O
6	I/O6	I/O6	I/O
7	I/O7	I/O7	I/O
8	I/O8	I/O8	I/O
9	I/O9	I/O9	I/O
10	I2C-DAT / SPI-MISO / I/O10	I2C Data / SPI MISO / I/O10	I/O *
11	I2C-CLK/SPI-MOSI / I/O11	I2C Clock / SPI MOSI / I/O11	I/O *
12	RXD1	Receive Data COM1	I
13	SPI-CS / I/O12	SPI Chip Select / I/O12	I/O *
14	TXD1	Transmit Data COM1	O
15	SPI-CLK / I/O13	SPI Clock / I/O13	I/O *
16	GND	Signal Ground	Power
17	I/O14	I/O14	I/O *
18	I/O15	I/O15	I/O *
19	I/O16	I/O16	I/O *
20	I/O17	I/O17	I/O *
21	I/O18	I/O18	I/O *
22	I/O19	I/O19	I/O *
23	I/O20	I/O20	I/O *
24	I/O21	I/O21	I/O *
25	V50-OUT	+5V DC Out	Power O
26	V33-OUT	+3.3V DC Out	Power O

*: pull-up resistor 4,7kΩ to +3,3V.

2.6.1 J5 Matrix Keyboard

J5			
Pin	Signal	Function	I/O
2	ROW7	Matrix Keyboard Row 7	O
3	ROW6	Matrix Keyboard Row 6	O
4	ROW5	Matrix Keyboard Row 5	O
5	ROW4	Matrix Keyboard Row 4	O
6	ROW3	Matrix Keyboard Row 3	O
7	ROW2	Matrix Keyboard Row 2	O
8	ROW1	Matrix Keyboard Row 1	O
9	ROW0	Matrix Keyboard Row 0	O
10	COL8	Matrix Keyboard Column 8	I *
11	COL9	Matrix Keyboard Column 9	I *
13	COL10	Matrix Keyboard Column 10	I *
15	COL11	Matrix Keyboard Column 11	I *
16	GND	Signal Ground	Power
17	COL7	Matrix Keyboard Column 7	I *
18	COL6	Matrix Keyboard Column 6	I *
19	COL5	Matrix Keyboard Column 5	I *
20	COL4	Matrix Keyboard Column 4	I *
21	COL3	Matrix Keyboard Column 3	I *
22	COL2	Matrix Keyboard Column 2	I *
23	COL1	Matrix Keyboard Column 1	I *
24	COL0	Matrix Keyboard Column 0	I *
25	V50-OUT	+5V DC Out	Power O
26	V33-OUT	+3.3V DC Out	Power O

*: pull-up resistor 4,7kΩ to +3,3V.

Not all pins are required for matrix keyboard functionality. Unused pins can be configured for different functions.

J5 I/O Interface

J5			
Pin	Signal	Function	I/O
1	I/O1	I/O1	I/O
2	I/O2	I/O2	I/O
3	I/O3	I/O3	I/O
4	I/O4	I/O4	I/O
5	I/O5	I/O5	I/O
6	I/O6	I/O6	I/O
7	I/O7	I/O7	I/O
8	I/O8	I/O8	I/O
9	I/O9	I/O9	I/O
10	I/O10	I/O10	I/O *
11	I/O11	I/O11	I/O *
13	I/O12	I/O12	I/O *
15	I/O13	I/O13	I/O *
16	GND	Signal Ground	Power
17	I/O14	I/O14	I/O *
18	I/O15	I/O15	I/O *
19	I/O16	I/O16	I/O *
20	I/O17	I/O17	I/O *
21	I/O 18	I/O 18	
22	I/O 19	I/O 19	
23	I/O 20	I/O 20	
24	I/O 21	I/O 21	
25	V50-OUT	+5V DC Out	Power O
26	V33-OUT	+3.3V DC Out	Power O

*: pull-up resistor 4,7kΩ to +3,3V.

2.6.2 J5 serial RS232 COM1

J5			
Pin	Signal	Function	I/O
12	RXD1	Receive Data COM1	I
14	TXD1	Transmit Data COM1	O
16	GND	Signal Ground	Power

RS232 level

2.6.3 J5 I2C

J5			
Pin	Signal	Function	I/O
10	I2C-DAT	I2C Data	I/O *
11	I2C-CLK	I2C Clock	I/O *
16	GND	Signal Ground	Power
26	V33-OUT	+3.3V DC Out	Power O

Pins 10/11 shared with SPI, software configurable.

2.6.4 J5 SPI

J5			
Pin	Signal	Function	I/O
10	SPI-MISO	SPI MISO	I/O *
11	SPI-MOSI	SPI MOSI	I/O *
13	SPI-CS	SPI Chip Select	I/O *
15	SPI-CLK	SPI Clock	I/O *
16	GND	Signal Ground	Power
26	V33-OUT	+3.3V DC Out	Power O

Pins 10/11 shared with I2C, software configurable.

2.7 J7

J7			
Pin	Signal	Function	I/O
1	LINEOUT-L	Audio Line Out Left	O
2	LINEOUT-R	Audio Line Out Right	O
3	GND	Ground	Power
4	LINEIN-L	Audio Line In Left	I
5	LINEIN-R	Audio Line In Right	I
6	GND	Ground	Power
7	MIC	Microphone In	I
8	MICBIAS	Microphone Bias Voltage	Power
9	RXD3 (AD2)	Receive Data COM3 (opt. Analog IN 2)	I (I)
10	TXD3 (AD3)	Transmit Data COM3 (opt. Analog IN 3)	O (I)
11	AD0	Analog IN 0	I
12	AD1	Analog IN 1	I
13	V50	+5V DC Out	Power O
14	GND	Ground	Power
15	TOUCH X+	Touchpanel X+	
16	TOUCH Y+	Touchpanel Y+	
17	TOUCH X-	Touchpanel X-	
18	TOUCH Y-	Touchpanel Y-	
19	V33	+3.3V DC Out	Power O
20	GND	Ground	Power
21	USBD-	USB Device -	I/O
22	USBD+	USB Device +	I/O
23	USBH-	USB Host-	I/O
24	USBH+	USB Host+	I/O
25	USBD Detect	USB Device Detect (5V In)	I
26	USBH Power	USB Host Power (5V Out)	O

2.7.1 J7 serial RS232 COM3

J7 COM3			
Pin	Signal	Function	I/O
9	RXD1	Receive Data COM3	I
10	TXD1	Transmit Data COM3	O
14	GND	Ground	Power

RS232 level

2.7.2 J7 Touchpanel

J7 Touchpanel			
Pin	Signal	Function	I/O
15	TOUCH X+	Touchpanel X+	
16	TOUCH Y+	Touchpanel Y+	
17	TOUCH X-	Touchpanel X-	
18	TOUCH Y-	Touchpanel Y-	

2.7.3 J7 USB Host

J7 USB Host			
Pin	Signal	Function	I/O
20	GND	Ground	Power
23	USBH-	USB Host-	I/O
24	USBH+	USB Host+	I/O
26	USBH Power	USB Host Power (5V Out)	O

ESD protection is required nearby the USB connector.
The usb.org webpage provides “High Speed USB Platform Design Guidelines“ with highly recommended information for a proper working USB design.

2.7.4 J7 USB Device

J7 USB Device			
Pin	Signal	Function	I/O
20	GND	Ground	Power
21	USBD-	USB Device -	I/O
22	USBD+	USB Device +	I/O
25	USBD Detect	USB Device Detect (5V In)	I *

*: USB detect voltage level 4.4V..5.25V

ESD protection is required nearby the USB connector.
The usb.org webpage provides "High Speed USB Platform Design Guidelines" with highly recommended information for a proper working USB design.

2.7.5 J7 Audio Interface

J7 Audio			
Pin	Signal	Function	I/O
1	LINEOUT-L	Audio Line Out Left	O
2	LINEOUT-R	Audio Line Out Right	O
3	GND	Ground	Power
4	LINEIN-L	Audio Line In Left	I
5	LINEIN-R	Audio Line In Right	I
6	GND	Ground	Power
7	MIC	Microphone In	I
8	MICBIAS	Microphone Bias Voltage	Power

2.7.6 J7 Analog Input

J7 Analog IN			
Pin	Signal	Function	I/O
9	(AD2)	(Analog IN 2)	I *
10	(AD3)	(Analog IN 3)	I *
11	AD0	Analog IN 0	I
12	AD1	Analog IN 1	I
14	GND	Ground	Power

Input Voltage: 0V to 3,3V
AD-Converter Resolution: 10 Bit, Error ±1 LSB
47kΩ Pull Down resistor to GND

*: AD2/3 shared with COM3, default configuration is COM3, hardware configurable, on request only, please contact sales@fs-net.de for details.

2.8 J10 I2C

J1			
Pin	Signal	Function	I/O
1	V33	+3.3V DC Out	Power O
2	I2C DAT	I2C Data	I/O *
3	I2C CLK	I2C Clock	O *
4	I2C RST	I2C Reset	O
5	I2C IRQ	I2C Interrupt	I
6	GND	Ground	Power

*: 2k5 pullup to 3.3V

2.9 J11 SD Card

A standard SD Card can be used in this slot.

2.10 J12 LVDS

J1			
Pin	Signal	Function	I/O
1	VLCD	Display Power +3.3V switched	Power O
2	VLCD	Display Power +3.3V switched	Power O
3	GND	Ground	Power
4	GND	Ground	Power
5	D0-	LVDS TX0-	O
6	D0+	LVDS TX0+	O
7	GND	Ground	Power
8	D1-	LVDS TX1+	O
9	D1+	LVDS TX1-	O
10	GND	Ground	Power
11	D2-	LVDS TX2-	O
12	D2+	LVDS TX2+	O
13	GND	Ground	Power
14	CLK-	LVDS Clock -	O
15	CLK+	LVDS Clock+	O
16	GND	Ground	Power
17	NC		
18	NC		
19	GND	Ground	Power
20	GND	Ground	Power
21	GND	Ground	Power
22	GND	Ground	Power
23	VLCD	Display Power +3.3V switched	Power O
24	VCFL-ON	Backlight switching voltage	O
25	BL-PWM	Backlight dimming PWM	O

Connector on the NetDCU14 is a JAE FI-S25P-HFE. Mating connector is JAE FI-S25S.

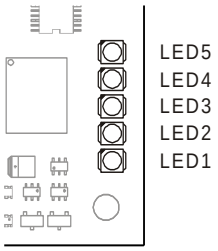
2.11 J13 Camera

Please contact F&S for more information on the camera interface

3 Status Indicators

The NetDCU14 has five LED status indicators.

Figure 3.1: Status LED



The following status information is displayed:

Status LED		
LED	Signal	Description
1	RUN	CPU in Run-Mode
2	STA1	Status indicator 1 (see SW documentation)
3	STA2	Status indicator 2 (see SW documentation)
4	ETH1	Ethernet1 link and activity
5	ETH2	Ethernet2 link and activity

4 Configuration

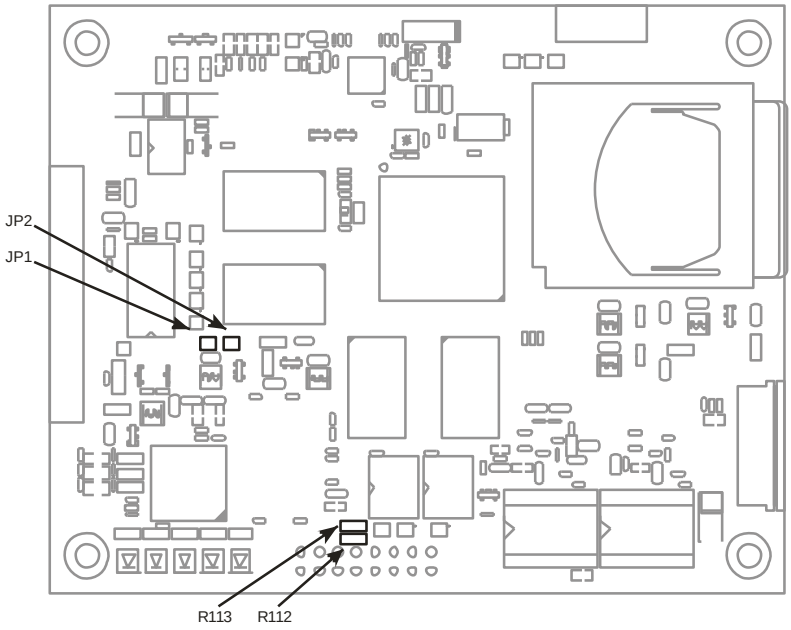


Figure 4.1: Top View

4.1 Display Interface

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

Configuration	
LCD Power Supply +3.3 (*)V	JP1
LCD Power Supply +5	JP2

Warning: Do not set both jumpers at the same time, this will short the power supply and will damage the board.

(*) Default Setting

4.2 FS-Bus

The voltage level of the FS-Bus (J4) can set by jumpers.

Configuration	
5V I/O Parallel Interface	R113
3.3V I/O Parallel Interface (*)	R112

Warning: Do not set both resistors at the same time, this will short the power supply and will damage the board.

(*) default setting
Jumper: 0Ω Resistor, size 0805

5 Electrical Data

Power Supply:	+5V DC / ±5%
Current Consumption:	2A max. (excluding Display)
Max. current on 3.3V DC Out:	100mA combined on all outputs
Max. current on 5V DC Out:	100mA combined on all outputs
Max. current on VLCD Out:	1A (Digital RGB and LVDS)
Max. current on VCFL Out	2A
Min. voltage on VCFL In	3.3V
Max. voltage on VCFL In	30V

5.1 DC electrical characteristics for 3.3V IO pins

VDD= 3.3V +/- 5%

Parameter	Description	Condition	Min	Max	Unit
Vih	High Level Input Voltage		0.7*VDD	VDD+0.3	V
Vil	Low Level Input Voltage		-0.3	0.3*VDD	V
Voh	High Level Output Voltage	Ioh=-100µA	VDD-0.2		V
Vol	Low Level Output Voltage	Ioh=100µA		0.2	V
Io	Output current	VDD=3.3V		2.6	mA

6 Technical Data

Board Size:	100mm x 80mm
Board thickness:	1.6mm
Height of parts on top side:	6.0mm (3.0mm without Ethernet transformers)
Height on parts on bottom side:	3.7mm (1.5mm without connectors)
Pin grid of connectors J1-J7	2.54mm
Mounting hole diameter	3.4mm
Interfaces:	3x RS232 (1x with RTS/CTS) 1x USB2.0 HighSpeed Host 1x USB2.0 HighSpedd Device 2x Ethernet 10/100 Mbit 2x CAN2.0 4x analog input 10bit SD-Card slot FS-BUS 8bit expansion bus Line.IN stero Line OUT stereo Microphone IN 4wire resistive touch panel Digital RGB display interface Analog VGA display interface LVDS display interface 2x I2C interface SPI interface Camera interface 21x I/O port
LCD Interface:	TBD
RAM:	256MB / 512MB
Flash:	128MB / 1GB
CPU:	Samsung S5PV210
Temperature:	0-70°C / -25-85°C
Dimensions:	100 x 80 x 11 mm (l x w x t)
Weight:	45 gr.

See NetDCU14 Starterkit documentation for connection examples.

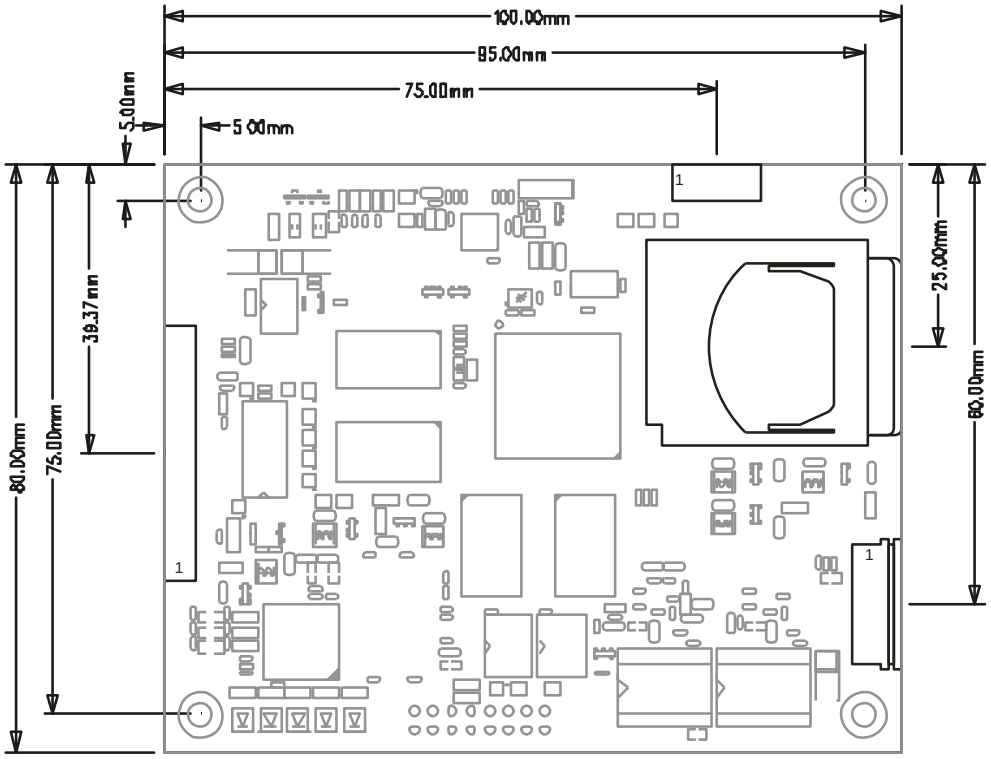


Figure 6.1 Top View

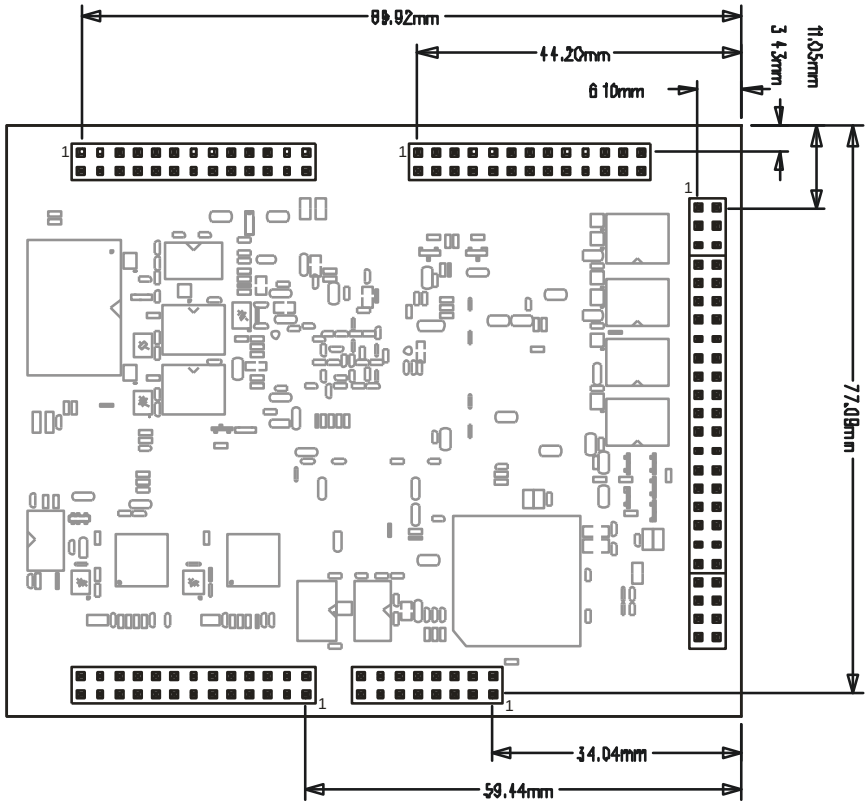


Figure 6.2 Bottom View

7 Important Notice

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