Chipsmall

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With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

Contact us

SK-FM4-216-ETHERNET

Hardware V1.0 / Documentation V1.3
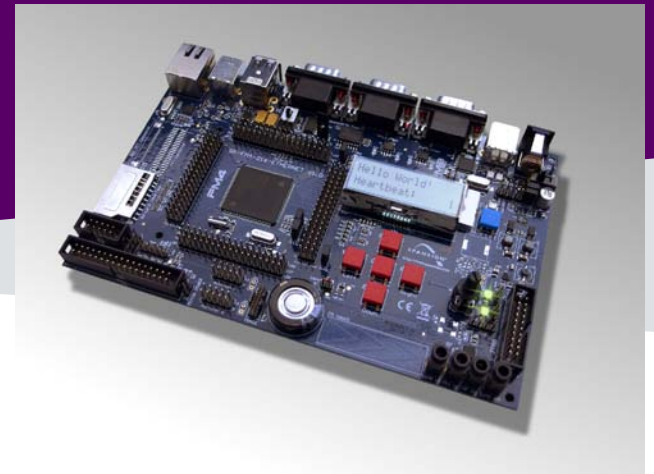
Warranty and Disclaimer

The use of the deliverables (deliverables shall include, but not limited to, software, application examples, hardware, target boards, evaluation boards, starter kits, schematics, engineering samples of IC's etc.) is subject to the terms and conditions of Spansion LLC and its affiliates ("SPANSION") as set out below and in (i) the terms and conditions of the License Agreement and/or the Sale and Purchase Agreement and/or any other agreement under which deliverables have been delivered, (ii) the technical descriptions and (iii) all accompanying written materials.

1. Please note that the deliverables are intended for and must only be used for test applications in an evaluation laboratory environment.

2. The software deliverables are provided on an as-is basis without charge and are subject to alterations. It is the user's obligation to fully test the software in its environment and to ensure proper functionality, qualification and compliance with component specifications.

3. Regarding hardware deliverables, the following limited warranty shall apply:

Except as otherwise provided in the following paragraphs, for a period of one (1) year from date of shipment to customer ("Warranty Period"), SPANSION warrants the hardware deliverables (i) are free of defects in material and workmanship, and (ii) conform to SPANSION applicable data sheet specifications (available at www.spansion.com or upon request).

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REGARDLESS OF THE BASIS ON WHICH CUSTOMER IS ENTITLED TO CLAIM DAMAGES FROM SPANSION (INCLUDING FUNDAMENTAL BREACH, NEGLIGENCE, MISREPRESENTATION, OR OTHER CONTRACT OR TORT CLAIM), SPANSION ENTIRE LIABILITY IN ANY CALENDAR YEAR, REGARDLESS OF THE NUMBER OF CLAIMS, SHALL NOT EXCEED FIFTY PERCENT (50%) OF THE TOTAL AMOUNT PAID BY CUSTOMER TO SPANSION FOR THE DELIVERABLES SOLD IN SUCH CALENDAR YEAR.

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6. The contents of this document are subject to change by SPANSION without a prior notice, thus contact SPANSION about the latest one.

This board and its deliverables must only be used for test applications in an evaluation laboratory environment.

- MCU Features, Board Features & Contents

- Test it

- The Hardware

- The Jumper Table / Jumper Default

- Board Power

- Software Examples & Tools

- Flash Programming

- JTAG / CMSIS-DAP

- IAR-Embedded Workbench

- KEIL µVision

- Workshops, Contacts & More

- **Additional documents**
  - Schematics
  - Data sheet S6E2CC Series
    - Peripheral Manual
      - Timer part
      - Analog part
      - Communication part
      - Ethernet part
  - Flash programming manual

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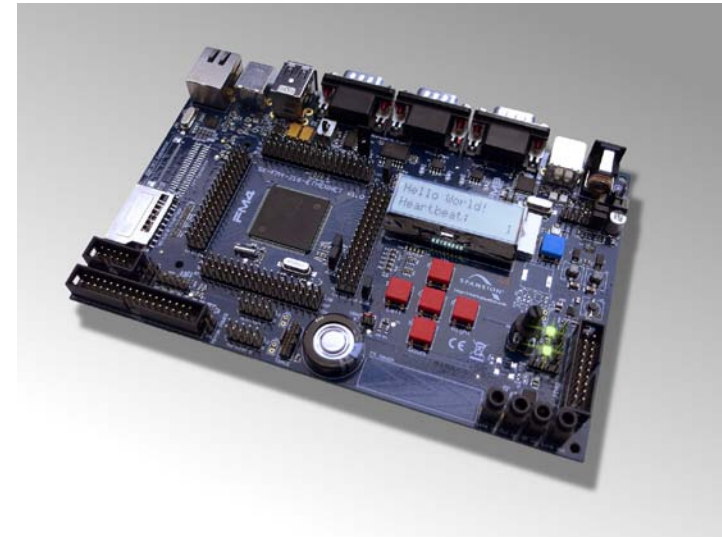
Features of the S6E2CC Microcontroller

RC oscillator +/-2%	**ARM Cortex-M4 – CPU** **200MHz (max)** **2.7-5.5V** **MPU, FPU** **Ta= -40°C to +105°C** Main CLK: 4MHz SUB CLK: 32kHz MAIN RC CLK: 4MHz SUB RC CLK: 100kHz **FM4**	OCU x 6ch / ICU x 4ch

RC oscillator +/-2%

Clock Supervisor

Subclock (option)

Low Voltage Detector 2ch

SWJ/TPIU/ETM Debug Ports

ARM Cortex-M4 – CPU

200MHz (max)

2.7-5.5V

MPU, FPU

Ta= -40°C to +105°C

Main CLK: 4MHz
SUB CLK: 32kHz
MAIN RC CLK: 4MHz
SUB RC CLK: 100kHz

FM4

OCU x 6ch

ICU x 4ch

ADT x 3ch

FRTim x 3ch

Multi Function Timer 3ch

Waveform Generator

MFS(UART/SPI/I²C) 16ch

Quad SPI

I2S

CAN (32 MSB) 2ch

CAN-FD 1ch

Ethernet MAC 10/100MBit

USB FS Host+Function 2ch

SD Card I/F

External Bus Interface (SRAM, SDRAM, NAND, ..)

Package:
LQFP144, LQFP176 , BGA192 , LQFP 216,

S6E2CC8H/J/L — FLASH 1MB | SRAM 128K

S6E2CC9H/J/L — FLASH 1.5MB | SRAM 192K

S6E2CCAH/J/L — FLASH 2MB | SRAM 256K

PPG 9ch

QDU 4ch

Base Timer 16ch

External IRQs 32ch + NMI

Dual Timer

DMA 8ch

Watch Counter

CRC

Resource Pin Relocation

RTC Y:M; h:m:s

12-bit ADC

12-bit ADC

32ch

12-bit ADC

Hardware Watchdog

DSTC 256ch

12-bit DAC 2ch

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Features of the board

- Features of the SK-FM4-216-ETHERNET board:

  - Microcontroller Spansion FM4 S6E2CCAL0A

  - FM *connect* Ethernet: 1x IEEE802.3 Ethernet

 - FM *connect* CAN: 2x CAN transceiver + 1x CAN-FD transceiver

  - FM *connect* USB: 2x USB-Host (Type-A connector), 1x USB-Device (Type-B connector)

  - FM *touch*: Slider using four ADC channels

  - FM *inverter*: Motor-Control-Interface for e.g. SK-POWER-3P-LV2-MC

  - FM *color*: Spansion S/W TFT interface

  - Spansion flash memory S25FL164K, connected via quad SPI interface

  - I²S audio interface

  - SD Card interface

  - 1x USB-to-serial converter (Type-B connector) using Spansion FM3 MB9AF312K

    - UART and on-board JTAG simultaneously (CMSIS DAP)

  - Additional JTAG and Trace Interfaces each on a 20 pin-header

  - 2x Spansion *Multicon* flexible serial interface supporting I²C, SPI, UART, and LIN

  - User interface

    - Backlit LCD module

    - 5x pushbuttons (*User* buttons), potentiometer

    - 1x *Reset*-button, *Reset*-LED

  - All 216 pins routed to pin-header

  - On-board 5V and 3V voltage regulators to supply MCU with separate *Power*-LEDs

  - 4x Power supply options: USB, USB-Device, JTAG or external 9V to 24V

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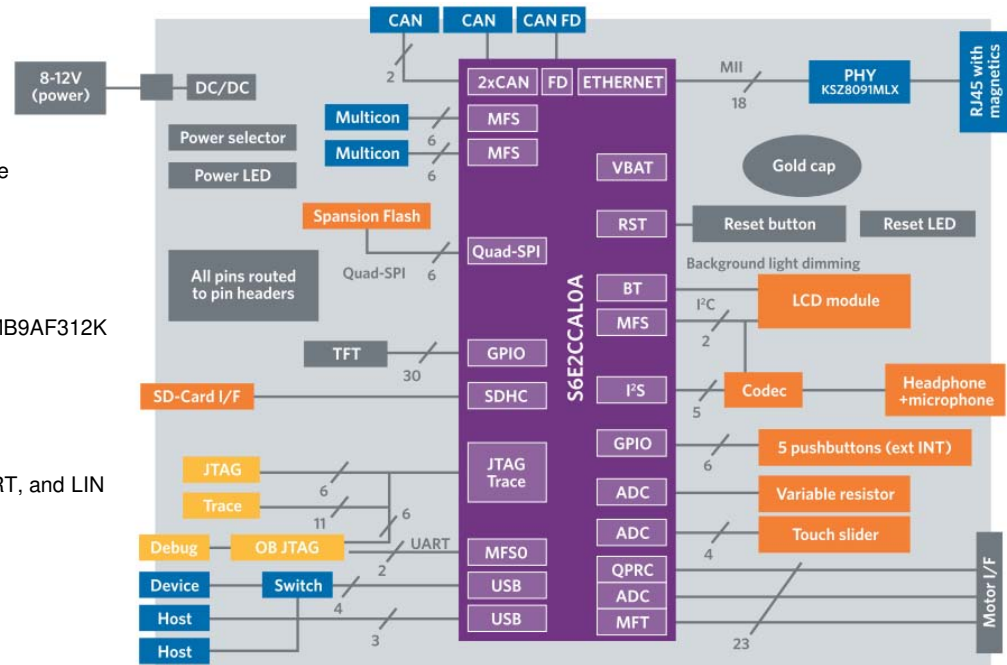
- The SK-FM4-216-ETHERNET box contains
  - The SK-FM4-216-ETHERNET evaluation board
  - USB cable
  - Ethernet cable
  - CD: Documentation, software examples and development utilities
  - 1-page flyer

CD ROM   **Additional information**

A
RJ45

B
RJ45

ESD foam   **ESD box**   **SK-FM4-216-ETHERNET**   **USB, Ethernet cable**

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Test it
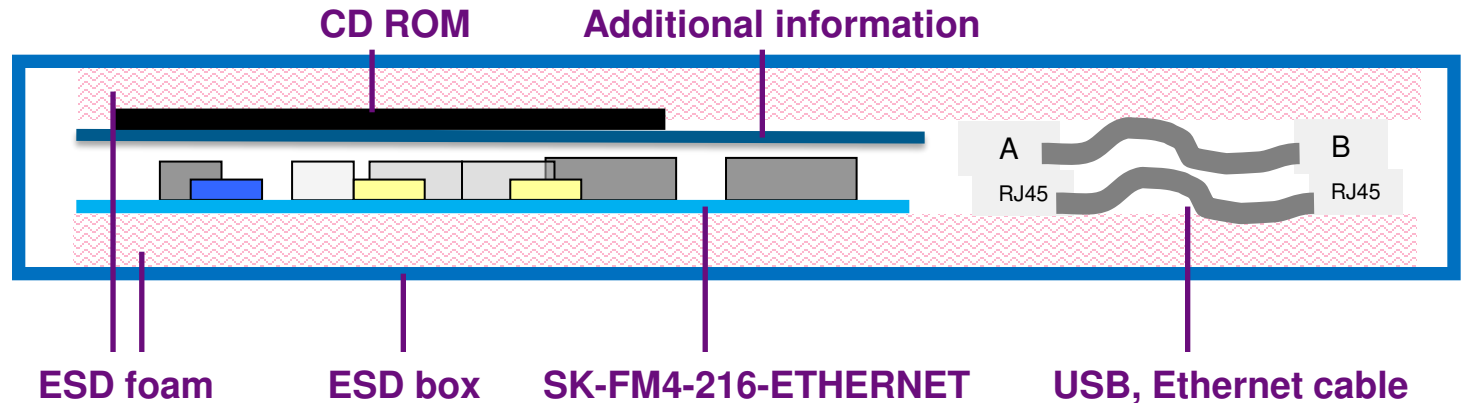
- The microcontroller on the SK-FM4-216-ETHERNET
  is already preprogrammed with an example application (<drive:>\Examples\sk-fm4-216-ethernet-tp_v12.srec).

    - Verify that jumpers JP75 and JP77 are set to 1-2 position and jumper JP76 is set to 3-4 position

    - Connect the SK-FM4-216-ETHERNET via DEBUG USB port (X2) with the PC

    - Verify that switch S1 is set to *RUN*

    - Press the *Reset*-button

    - The SK-FM4-216-ETHERNET's display will show a greeting message

    - Using the Up and Down pushbuttons will scroll through a menu on the LCD module

- Connect X3 (static IP address 192.168.1.20) to a PC or local area network

    - Configure your PC to an untaken IP address within the same subnet (such as 192.168.1.42)

    - Point your webbrowser to board's IP address (192.168.1.20)

- Install the USB Driver first <drive:>\drivers\driverinstaller.exe

    - Check the availibility for virtual COM port e.g. with Windows Device Manager

    - Open a serial terminal tool

    - e.g. Spansion Serial Port Viewer
      <drive:>\tools\serialportviewer\setup.exe

    - Settings 115200 baud, 8N1

    - More board tests are available via serial console

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- You finished successfully the first tests

Congratulations!

- Now you will get more details about the SK-FM4-216-ETHERNET

- You will learn more about

  - The on-board features

  - How to program the Flash

  - How to start with IAR-Embedded-Workbench and KEIL µVision

SPANSION

Hardware

The Hardware (Top Side) – Function Overview

Ethernet

USB Device

USB Host 0/1

Run/Prog switch S1

CAN2 (FD)

CAN1

CAN0

DEBUG

Vin: 9..24V

MB9AF312K

Power switch S2

Flash

2x16 LCD Module

Reset button

TFT Interface

S6E2CCAL0A

SD Card I/F

Five user buttons

Variable Resistor

Motion Control I/F

JTAG

Trace

FM *touch*

MultiCon 0/1

Audio Interface

SK-FM4-216-ETHERNET v1.0

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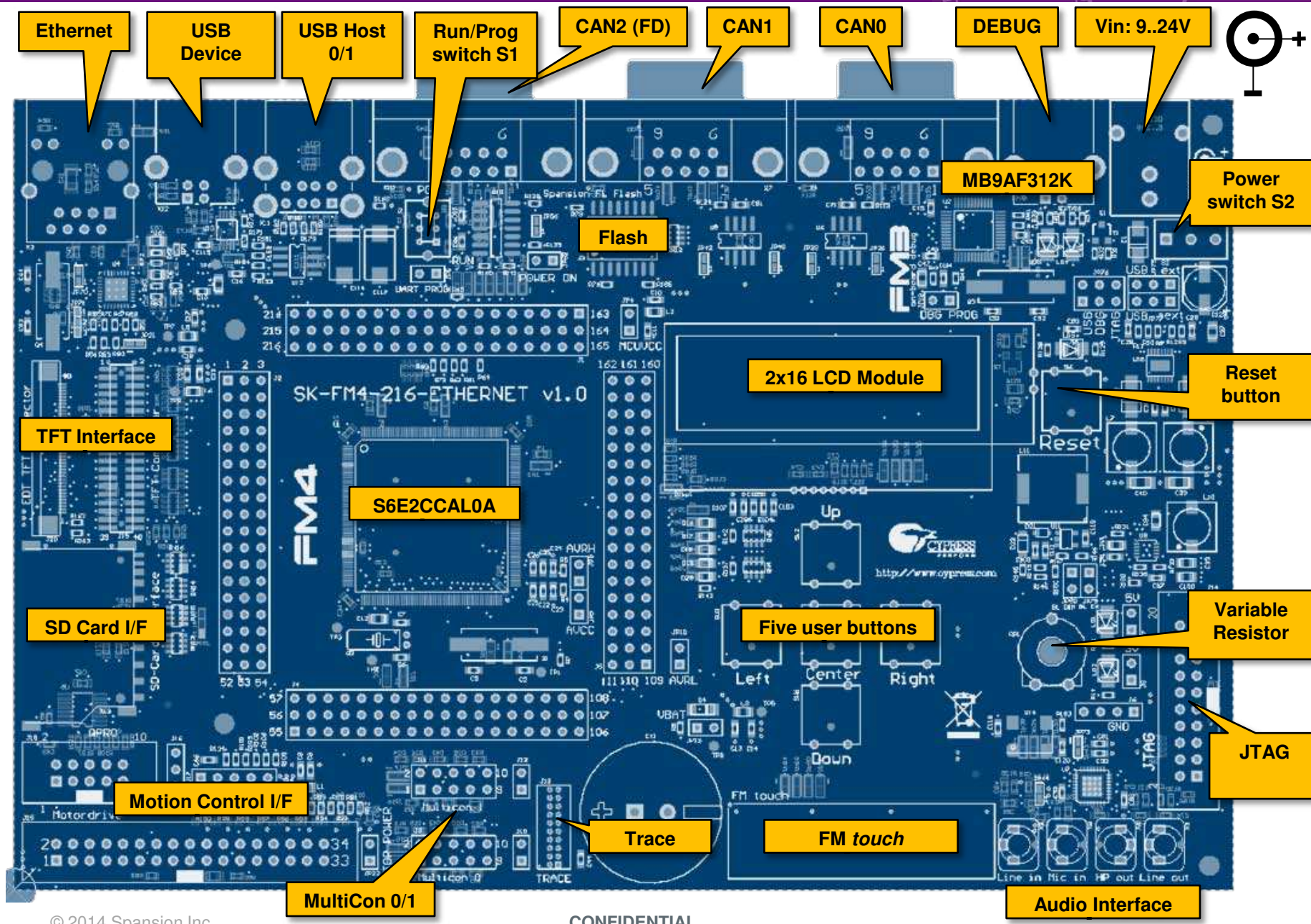
Jumper Settings – Power the starterkit

- The starter kit can be powered by

  - External power supply (9-24V)

    - Set jumpers JP75 and JP77 to position 1-2
      - Caution: Always set JP75 and JP77 horizontally, never vertically!

    - Connect X1 to 8..24V DC power

    - Switch S2 into ON position

  - USB

    - There are three ways to power the starter kit via USB

    - Set jumpers JP75 and JP77 to position 2-3

    - Set jumper JP76 according to the desired power source:

JP76	Power source	Connector
1-2	USB Device	X12
3-4	DEBUG	X2
5-6	JTAG (ensure that adapter can provide enough current for your application! Some JTAG probes source insufficient power and some features might misbehave unexpectedly)	J14
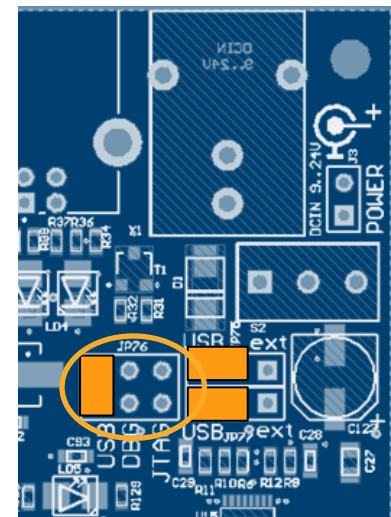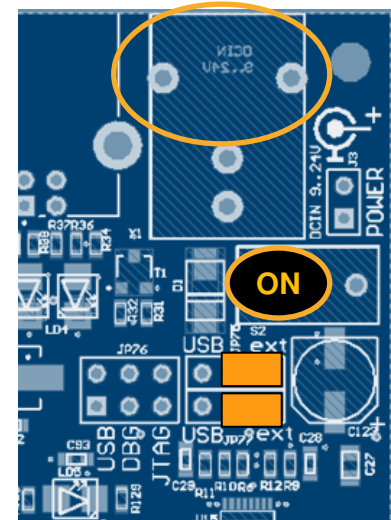
  - For CAN2 (CAN FD), external power supply must be used, not USB

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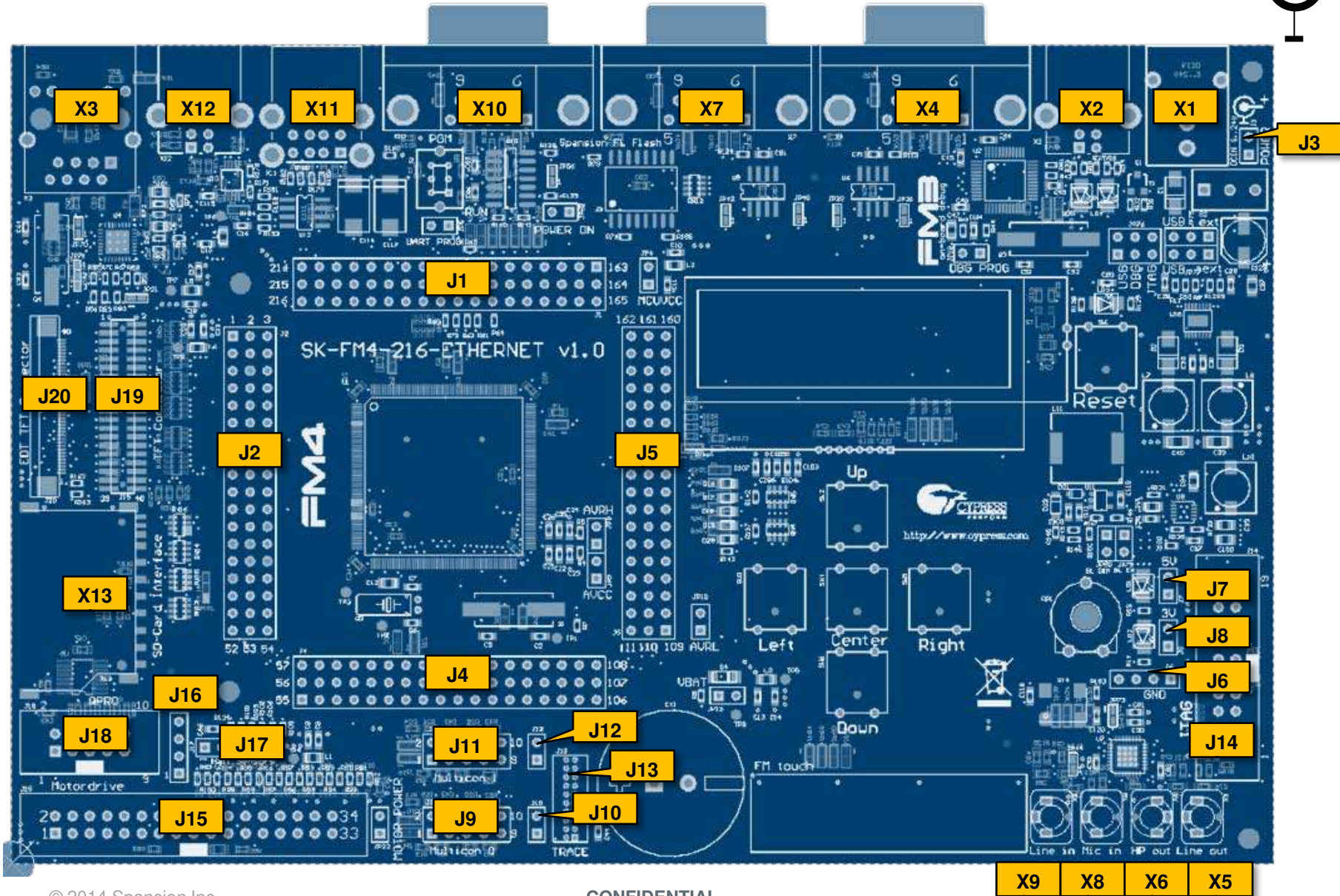
Connectors SK-FM4-216-ETHERNET

Number	Description
J1	MCU pins 163..216
J2	MCU pins 1..54
J3	VCCin (1: before switch, 2: after switch)
J4	MCU pins 55..108
J5	MCU pins 109..162
J6	4x GND
J7	2x 5V
J8	2x 3V3
J9	Multicon 0
[J10]	Multicon 0 optional
J11	Multicon 1
[J12]	Multicon 1 optional
J13	Trace
J14	JTAG
J15	Motor drive interface
J16	Motor I/F: Optional signals
J17	Hall Sensors
J18	QPRC
[J19]	Display RGB888 connector
[J20]	FPC/FCC connector

Number	Description
X1	DCin 9..24V
X2	Debug
X3	Ethernet
X4	CAN0
X5	Audio line out
X6	Audio headphones out
X7	CAN1
X8	Audio microphone in
X9	Audio line in
X10	CAN2 (CAN FD)
X11	USB Host (0/1)
X12	USB Device
X13	SD Card Connector

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Jumper Settings – (Top Side)
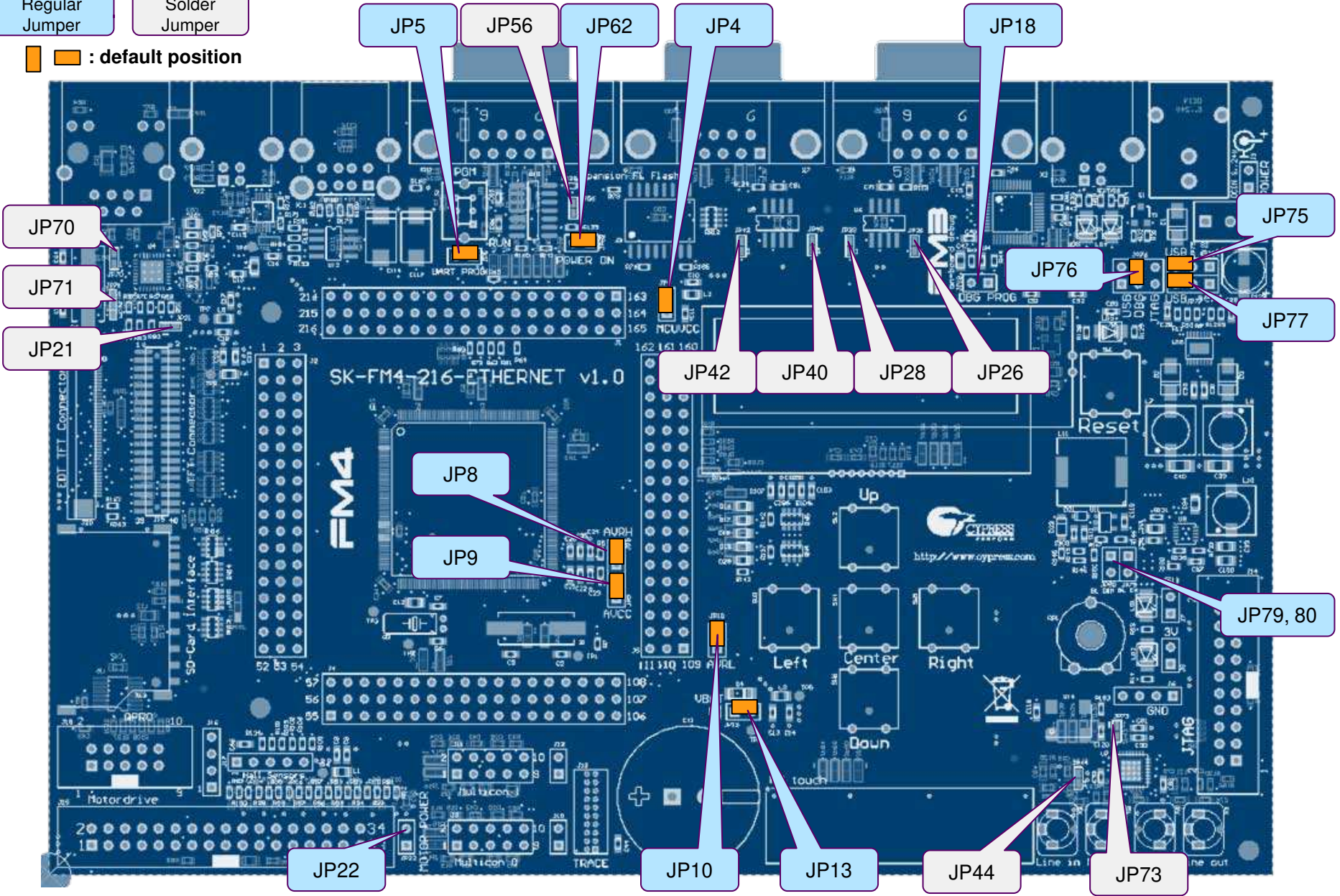
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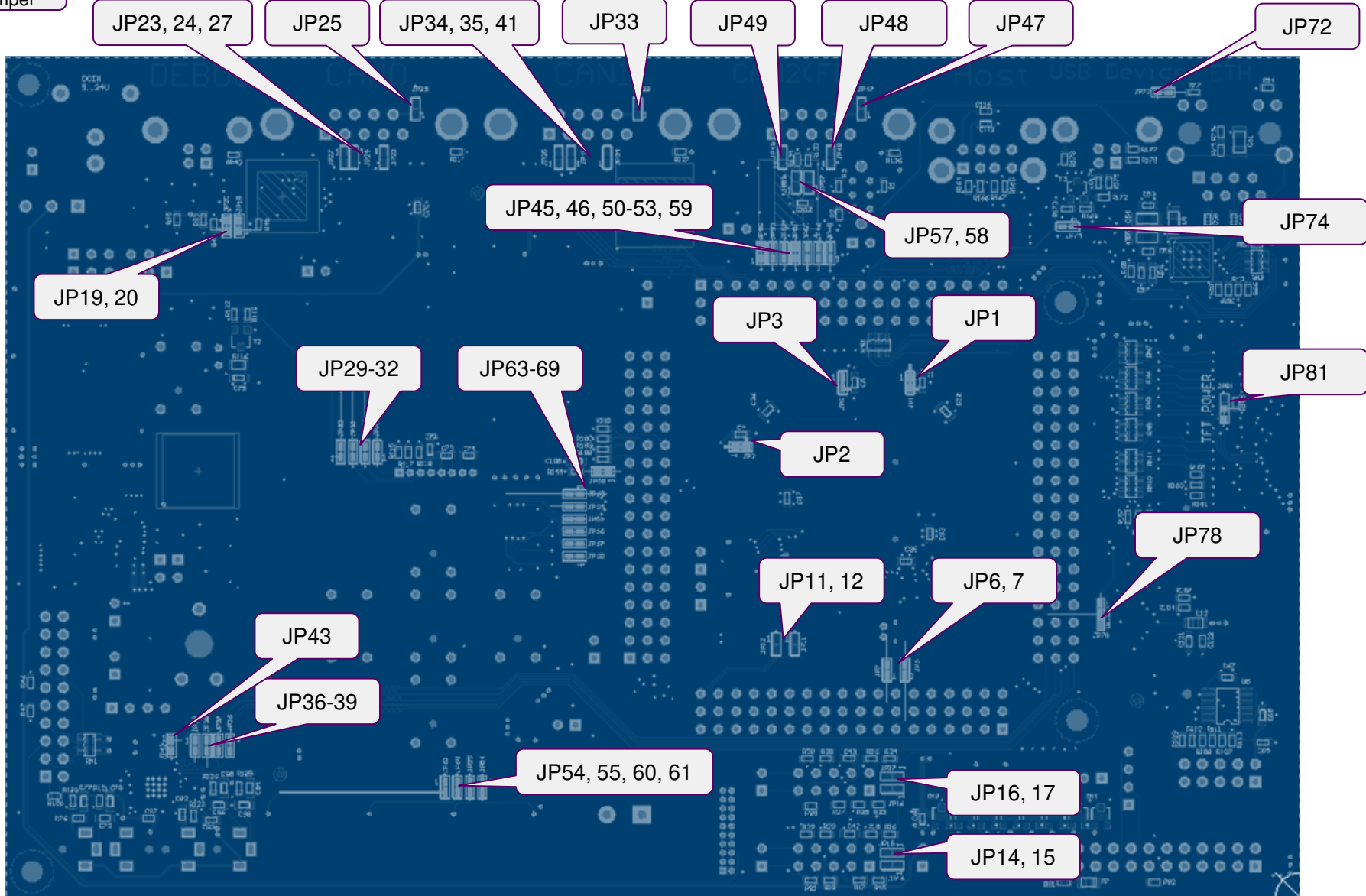
Jumper Settings SK-FM4-216-ETHERNET

Number	Description	Special Type	Default
JP1	USBVCC0	Solder Jumper	Closed
JP2	USBVCC1	Solder Jumper	Closed
JP3	ETHVCC	Solder Jumper	Closed
JP4	MCUVCC		Closed
JP5	USB/UART programming		Closed
JP6	X0A Access	Solder Jumper	Closed
JP7	X1A Access	Solder Jumper	Closed
JP8	AVRH		Closed
JP9	AVCC		Closed
JP10	AVRL		Closed
JP11	X0 Access	Solder Jumper	Open
JP12	X1 Access	Solder Jumper	Open
JP13	VBAT		Closed
JP14	Multicon0: SCL pull-up	Solder Jumper	Open
JP15	Multicon0: SDA pull-up	Solder Jumper	Open
JP16	Multicon1: SCL pull-up	Solder Jumper	Open
JP17	Multicon1: SDA pull-up	Solder Jumper	Open
JP18	DBG Prog (S/W upgrade U2)		Open

Number	Description	Special Type	Default
JP19	MFS0_SOT	Solder Jumper	Closed
JP20	MFS0_SIN	Solder Jumper	Closed
JP21	EthPHY IRQ	Solder Jumper	Closed
JP22	Supply VCCin from motor		Open
JP23	CAN0GND4	Solder Jumper	Open
JP24	CAN0GND6	Solder Jumper	Open
JP25	CAN0pwr	Solder Jumper	Open
JP26	CAN0RX	Solder Jumper	Closed
JP27	CAN0term	Solder Jumper	Open
JP28	CAN0TX	Solder Jumper	Closed
JP29	LCDRST	Solder Jumper	Closed
JP30	HMISCL	Solder Jumper	Closed
JP31	HMISDA	Solder Jumper	Closed
JP32	LCDBL	Solder Jumper	Closed
JP33	CAN1pwr	Solder Jumper	Open
JP34	CAN1GND4	Solder Jumper	Open
JP35	CAN1GND6	Solder Jumper	Open
JP36	I2SDO	Solder Jumper	Closed

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Jumper

Jumper Settings SK-FM4-216-ETHERNET

Number	Description	Special Type	Default
JP37	I2SDI	Solder Jumper	Closed
JP38	I2SCK	Solder Jumper	Closed
JP39	I2SWS	Solder Jumper	Closed
JP40	CAN1RX	Solder Jumper	Closed
JP41	CAN1term	Solder Jumper	Open
JP42	CAN1TX	Solder Jumper	Closed
JP43	I2SMCLK	Solder Jumper	Closed
JP44	I2SAGND	Solder Jumper	Closed
JP45	CAN2RX	Solder Jumper	Closed
JP46	CAN2TX	Solder Jumper	Closed
JP47	CAN2pwr	Solder Jumper	Open
JP48	CAN2GND4	Solder Jumper	Open
JP49	CAN2GND6	Solder Jumper	Open
JP50	CAN2S	Solder Jumper	Closed
JP51	CAN2C	Solder Jumper	Closed
JP52	CAN2O	Solder Jumper	Closed
JP53	CAN2I	Solder Jumper	Closed
JP54	Touch AN24	Solder Jumper	Closed

Number	Description	Special Type	Default
JP55	Touch AN25	Solder Jumper	Closed
JP56	CANFDBAT	Solder Jumper	Closed
JP57	CAN2termH	Solder Jumper	Open
JP58	CAN2termL	Solder Jumper	Open
JP59	CAN2Wake	Solder Jumper	Closed
JP60	Touch AN26	Solder Jumper	Closed
JP61	Touch AN27	Solder Jumper	Closed
JP62	POWERON		Closed
JP63	Button UP	Solder Jumper	Closed
JP64	Button RIGHT	Solder Jumper	Closed
JP65	Button CENTER	Solder Jumper	Closed
JP66	Button LEFT	Solder Jumper	Closed
JP67	Button DOWN	Solder Jumper	Closed
JP68	Button IRQ	Solder Jumper	Closed
JP69	RP1	Solder Jumper	Closed
JP70	EthPHY XO	Solder Jumper	Closed
JP71	EthPHY XI	Solder Jumper	Closed
JP72	Ethernet Yellow LED	Solder Jumper	Closed

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Jumper

Jumper Settings SK-FM4-216-ETHERNET

Number	Description	Special Type	Default
JP73	I2S48.1k	Solder Jumper	Closed
JP74	USB HCONX	Solder Jumper	Closed
JP75	1-2: External power supply 2-3: Supply via USB or JTAG	JP75 must equal 77	1-2
JP76	1-2: USB Device (X11) 3-4: Debug port (X2) 5-6: JTAG (J11) (watch voltage!)	Only relevant if JP75 and JP77 set to 2-3	3-4
JP77	1-2: External power supply 2-3: Supply via USB or JTAG	JP75 must equal 77	1-2
JP78	SD_CD: 1-2: CD 2-3: CD/DAT3	Solder Jumper	1-2
[JP79]	Backlight enable		Open
[JP80]	Backlight dimming		Open
[JP81]	LCD power control		1-2

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Pin-List SK-FM4-216-ETHERNET (3/9)

Pin	Function	Description
1	**VCC**	MCUVCC
2	**PA0**/RTO20_0/TIOA8_0/AIN2_0/INT00_0/MADATA00_0	Pushbutton UP
3	**PA1**/RTO21_0/TIOA9_0/BIN2_0/MADATA01_0	Pushbutton RIGHT
4	**PA2**/RTO22_0/TIOA10_0/ZIN2_0/MADATA02_0	Pushbutton CENTER
5	**PA3**/RTO23_0/TIOA11_0/MADATA03_0	Pushbutton LEFT
6	**PA4**/RTO24_0/TIOA12_0/MADATA04_0	Pushbutton DOWN
7	PA5/SIN1_0/RTO25_0/TIOA13_0/**INT01_0**/MADATA05_0	Pushbutton IRQ
8	PA6/SOT1_0/DTTI2X_0/MADATA06_0	
9	PA7/SCK1_0/IC20_0/MADATA07_0	
10	P50/SCS72_0/**RTO00_1**/TIOA8_2/MADATA16_0	Motor0/MFT0
11	P51/SCS73_0/**RTO01_1**/TIOB8_2/MADATA17_0	Motor0/MFT0
12	P52/**RTO02_1**/TIOA9_2/MADATA18_0	Motor0/MFT0
13	P53/**RTO03_1**/TIOB9_2/MADATA19_0	Motor0/MFT0
14	PA8/SIN7_0/IC21_0/**INT02_0**/**WKUP1**/MADATA08_0	Ethernet PHY IRQ
15	PA9/SOT7_0/IC22_0/MADATA09_0	
16	**PAA**/SCK7_0/IC23_0/MADATA10_0	USB (Host1 VBUS enable)
17	PAB/SCS70_0/RX0_0/FRCK2_0/**INT03_0**/MADATA11_0	USB1 Overcurrent IRQ
18	PAC/SCS71_0/TX0_0/**TIOB8_0**/**AIN3_0**/MADATA12_0	Motor0/QPRC3
19	P54/SIN15_1/**RTO04_1**/TIOA10_2/INT00_2/MADATA20_0	Motor0/MFT0
20	P55/SOT15_1/**RTO05_1**/TIOB10_2/MADATA21_0	Motor0/MFT0
21	P56/SCK15_1/**DTTI0X_1**/TIOB0_1/MADATA22_0	Motor0/MFT0
22	P57/**IC00_1**/TIOB1_1/MADATA23_0	Motor0/IC0
23	PAD/SCK3_0/TIOB9_0/**BIN3_0**/MADATA13_0	Motor0/QPRC3
24	PAE/ADTG_0/SOT3_0/TIOB10_0/**ZIN3_0**/MADATA14_0	Motor0/QPRC3

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Pin-List SK-FM4-216-ETHERNET (3/9)

Pin	Function	Description
25	PAF/SIN3_0/TIOB11_0/INT16_0/MADATA15_0	
26	P58/SIN11_1/**IC01_1**/TIOB2_1/INT02_2/MADATA24_0	Motor0/IC0
27	P59/SOT11_1/**IC02_1**/TIOB3_1/MADATA25_0	Motor0/IC0
28	P5A/SCK11_1/IC03_1/TIOB4_1/MADATA26_0	
29	P5B/FRCK0_1/TIOB5_1/MADATA27_0	
30	P08/SIN14_0/TIOB12_0/INT17_0/MDQM0_0	
31	P09/SOT14_0/TIOB13_0/INT18_0/MDQM1_0	
32	P0A/ADTG_1/SCK14_0/AIN2_1/MCLKOUT_0	
33	P5C/**TIOA11_2**/MADATA28_0/RTCCO_1/SUBOUT_1	Motor0 OPT1 (Brake)
34	P30/RX0_1/TIOA13_2/INT03_2/MDQM2_0/**I2SDI_0**	I2S serial receive data input pin
35	P31/TX0_1/TIOB13_2/MDQM3_0/**I2SCK_0**	I2S bit clock terminal
36	P32/BIN2_1/INT19_0/**S_DATA1_0**	SD I/F
37	P33/FRCK0_0/ZIN2_1/**S_DATA0_0**	SD I/F
38	P34/IC03_0/INT00_1/**S_CLK_0**	SD I/F
39	**VCC**	MCUVCC
40	**VSS**	GND
41	P35/IC02_0/INT01_1/**S_CMD_0**	SD I/F
42	P36/IC01_0/INT02_1/**S_DATA3_0**	SD I/F
43	P37/IC00_0/INT03_1/**S_DATA2_0**	SD I/F
44	P38/ADTG_2/DTTI0X_0/**S_WP_0**	SD I/F
45	P39/SIN2_1/RTO00_0/TIOA0_1/AIN3_1/INT16_1/**S_CD_0**/MAD24_0	SD I/F
46	P3A/SOT2_1/RTO01_0/TIOA1_1/BIN3_1/INT17_1/MAD23_0	
47	P3B/SCK2_1/RTO02_0/TIOA2_1/ZIN3_1/INT18_1/MAD22_0/MNALE_0	
48	P3C/SIN13_0/RTO03_0/TIOA3_1/INT19_1/MAD21_0/MNCLE_0	

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Pin-List SK-FM4-216-ETHERNET (3/9)

Pin	Function	Description
49	P3D/SOT13_0/RTO04_0/TIOA4_1/MAD20_0/MNWEX_0	
50	P3E/SCK13_0/RTO05_0/TIOA5_1/MAD19_0/MNREX_0	
51	P5D/SIN10_1/TIOB11_2/INT01_2/MADATA29_0/**I2SMCLK_0**	I2S External clock terminal
52	P5E/SOT10_1/TIOA12_2/MADATA30_0/**I2SDO_0**	I2S serial transmit data output pin
53	P5F/SCK10_1/TIOB12_2/MADATA31_0/**I2SWS_0**	I2S frame sync signal terminal
54	**VSS**	GND
55	**VCC**	MCUVCC
56	P40/SIN3_1/RTO10_0/**TIOA0_0**/AIN0_0/INT23_0/MCSX7_0	TFT Connector (CSYNC)
57	P41/SOT3_1/RTO11_0/**TIOA1_0**/BIN0_0/MCSX6_0	TFT Connector (DE)
58	P42/SCK3_1/RTO12_0/**TIOA2_0**/ZIN0_0/MCSX5_0	TFT Connector (DCLK)
59	P43/SIN15_0/RTO13_0/**TIOA3_0**/INT04_0/MCSX4_0	TFT Connector (VSYNC)
60	P44/SOT15_0/RTO14_0/**TIOA4_0**/MCSX3_0	TFT Connector (HSYNC)
61	P45/SCK15_0/RTO15_0/**TIOA5_0**/MCSX2_0	TFT Connector (LEDCTRL)
62	**C**	C
63	**VSS**	GND
64	**VCC**	MCUVCC
65	P4A/**SIN12_1**/AIN0_1/INT04_2	CAN FD control SPI
66	P4B/**SOT12_1**/BIN0_1	CAN FD control SPI
67	P4C/**SCK12_1**/ZIN0_1	CAN FD control SPI
68	P4D/SCS72_1/**RX2_2**/INT05_2	CAN2 (CAN-FD)
69	P4E/SCS73_1/**TX2_2**	CAN2 (CAN-FD)
70	**P7D**/SCK1_1/RX2_0/DTTI1X_0/INT05_0/WKUP2/MCSX1_0	CAN FD Wake
71	**P7E**/ADTG_7/TX2_0/FRCK1_0/MCSX0_0	CAN FD control SPI
72	**INITX**	Reset

Pin-List SK-FM4-216-ETHERNET (4/9)

Pin	Function	Description
73	P46/**X0A**	[Crystal (Subclock)]
74	P47/**X1A**	[Crystal (Subclock)]
75	**VBAT**	VBAT
76	P48/VREGCTL	
77	P49/VWAKEUP	
78	PF0/SCS63_0/RX2_1/FRCK1_1/TIOA15_1/INT22_1	
79	PF1/SCS62_0/TX2_1/TIOB15_1/INT23_1	
80	P70/ADTG_8/SIN1_1/INT06_0/MRDY_0/CEC0_0	
81	P71/SOT1_1/MAD00_0	
82	P72/SIN9_0/TIOB0_0/INT07_0/MAD01_0	
83	P73/SOT9_0/TIOB1_0/MAD02_0	
84	P74/SCK9_0/TIOB2_0/MAD03_0	
85	PF2/RTO10_1/TIOA6_1/MRASX_0	
86	PF3/RTO11_1/TIOB6_1/INT05_1/MCASX_0	
87	PF4/RTO12_1/TIOA7_1/INT06_1/MSDWEX_0	
88	**PF5**/RTO13_1/TIOB7_1/INT07_1/MCSX8_0	Multicon0 Reset
89	PF6/RTO14_1/TIOA14_1/**INT20_1**/MSDCKE_0	Multicon0 (GINT)
90	PF7/RTO15_1/TIOB14_1/**INT21_1**/MSDCLK_0	Multicon0 (TINT)
91	P75/**SIN8_0**/TIOB3_0/AIN1_0/INT20_0/MAD04_0	Multicon0
92	P76/**SOT8_0**/TIOB4_0/BIN1_0/MAD05_0	Multicon0
93	P77/**SCK8_0**/TIOB5_0/ZIN1_0/MAD06_0	Multicon0
94	PF8/SCS70_1/DTTI1X_1/AIN1_1	
95	PF9/SCS71_1/IC10_1/BIN1_1	
96	P78/SIN6_0/IC10_0/INT21_0/MAD07_0	

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Pin-List SK-FM4-216-ETHERNET (5/9)

Pin	Function	Description
97	P79/SOT6_0/IC11_0/MAD08_0	
98	P7A/SCK6_0/IC12_0/MAD09_0	
99	P7B/DA1/SCS60_0/IC13_0/INT22_0	---
100	P7C/DA0/SCS61_0/INT04_1	---
101	PFA/SCK7_1/IC11_1/ZIN1_1	
102	PFB/SOT7_1/IC12_1/INT07_2	
103	PFC/SIN7_1/IC13_1/INT06_2	
104	PE0/**MD1**	MD1
105	**MD0**	MD0/ USB Direct Flash
106	PE2/**X0**	Crystal (mainclock)
107	PE3/**X1**	Crystal (mainclock)
108	**VSS**	GND
109	**VCC**	MCUVCC
110	**AVCC**	AVCC
111	**AVSS**	AVSS
112	**AVRL**	AVRL
113	**AVRH**	AVRH
114	P10/**AN00**/SIN10_0/TIOA0_2/AIN0_2/INT08_0	Motor0/ADC
115	P11/**AN01**/SOT10_0/TIOB0_2/BIN0_2	Motor0/ADC
116	P12/**AN02**/SCK10_0/TIOA1_2/ZIN0_2	Motor0/ADC
117	P13/**AN03**/SIN6_1/RX1_1/INT25_1	Motor0/ADC
118	P14/**AN04**/SOT6_1/TX1_1	Motor0/ADC
119	**PB8**/ADTG_6/SCS63_1/INT08_2/TRACED8	TFT Connector
120	**PB9**/SIN9_1/AIN2_2/INT09_2/TRACED9	TFT Connector

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Hardware

Pin-List SK-FM4-216-ETHERNET (6/9)

Pin	Function	Description
121	**PBA**/SOT9_1/BIN2_2/TRACED10	TFT Connector
122	**PBB**/SCK9_1/ZIN2_2/TRACED11	TFT Connector
123	P15/**AN05**/SIN11_0/TIOB1_2/AIN1_2/INT09_0	Motor0/ADC
124	P16/**AN06**/SOT11_0/TIOA2_2/BIN1_2	Motor0/ADC
125	P17/**AN07**/SCK11_0/TIOB2_2/ZIN1_2	Motor0/ADC
126	**PB0**/AN16/SCK6_1/TIOA9_1	TFT Connector
127	**PB1**/AN17/SCS60_1/TIOB9_1/INT08_1	TFT Connector
128	**PB2**/AN18/SCS61_1/TIOA10_1/INT09_1	TFT Connector
129	**PB3**/AN19/SCS62_1/TIOB10_1	TFT Connector
130	P18/**AN08**/SIN2_0/TIOA3_2/INT10_0	Motor0/ADC
131	P19/AN09/SOT2_0/TIOB3_2/INT24_1/**TRACECLK**	TRACE
132	P1A/AN10/SCK2_0/TIOA4_2/**TRACED0**	TRACE
133	P1B/AN11/SIN12_0/TIOB4_2/INT11_0/**TRACED1**	TRACE
134	P1C/AN12/SOT12_0/TIOA5_2/**TRACED2**	TRACE
135	P1D/AN13/SCK12_0/TIOB5_2/**TRACED3**	TRACE
136	**VSS**	GND
137	**VCC**	MCUVCC
138	**PB4**/AN20/SIN8_1/TIOA11_1/INT10_1/TRACED4	TFT Connector
139	**PB5**/AN21/SOT8_1/TIOB11_1/INT11_1/TRACED5	TFT Connector
140	**PB6**/AN22/SCK8_1/TIOA12_1/TRACED6	TFT Connector
141	**PB7**/AN23/TIOB12_1/TRACED7	TFT Connector
142	P1E/**AN14**/TIOA8_1/INT26_1/MAD10_0	Variable Resistor RP1
143	P1F/AN15/RTS5_0/TIOB8_1/INT27_1/MAD11_0	
144	P2A/**AN24**/CTS5_0/MAD12_0	Software Touch

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Pin-List SK-FM4-216-ETHERNET (7/9)

Pin	Function	Description
145	P29/**AN25**/SCK5_0/MAD13_0	Software Touch
146	P28/**AN26**/SOT5_0/MAD14_0	Software Touch
147	P27/**AN27**/SIN5_0/INT24_0/MAD15_0	Software Touch
148	**PBC**/TX1_2/TRACED12	TFT Connector
149	**PBD**/SCK0_1/RX1_2/AIN3_2/INT10_2/TRACED13	TFT Connector
150	**PBE**/SOT0_1/BIN3_2/TRACED14	TFT Connector
151	**PBF**/SIN0_1/ZIN3_2/INT11_2/TRACED15	TFT Connector
152	P26/**TX1_0**/MAD16_0	CAN1
153	P25/AN28/**RX1_0**/INT25_0/MAD17_0	CAN1
154	P24/AN29/**TIOA13_1**/MAD18_0	LCD Illumination Dimming
155	**P23**/UHCONX1/AN30/SCK0_0/TIOB13_1	LCD Reset
156	P22/AN31/**SOT0_0**/INT26_0	UART/(USB-serial)
157	P21/ADTG_4/**SIN0_0**/INT27_0/CROUT_0	UART/(USB-serial)
158	P20/NMIX/WKUP0	---
159	**USBVCC1**	USBVCC1
160	P82/**UDM1**	USB
161	P83/**UDP1**	USB
162	**VSS**	GND
163	**VCC**	MCUVCC
164	P00/**TRSTX**	JTAG
165	P01/**TCK**/SWCLK	JTAG
166	P02/**TDI**	JTAG
167	P03/**TMS**/SWDIO	JTAG
168	P04/**TDO**/SWO	JTAG

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