

Voipac i.MX25 Baseboard

Datasheet

Date	Revision	Changes
29. October 2010	1.0	Initial Release
12. January 2011	1.1	Modified Power Supply Range in Chapter 1.4

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1. Introduction

1.1 General

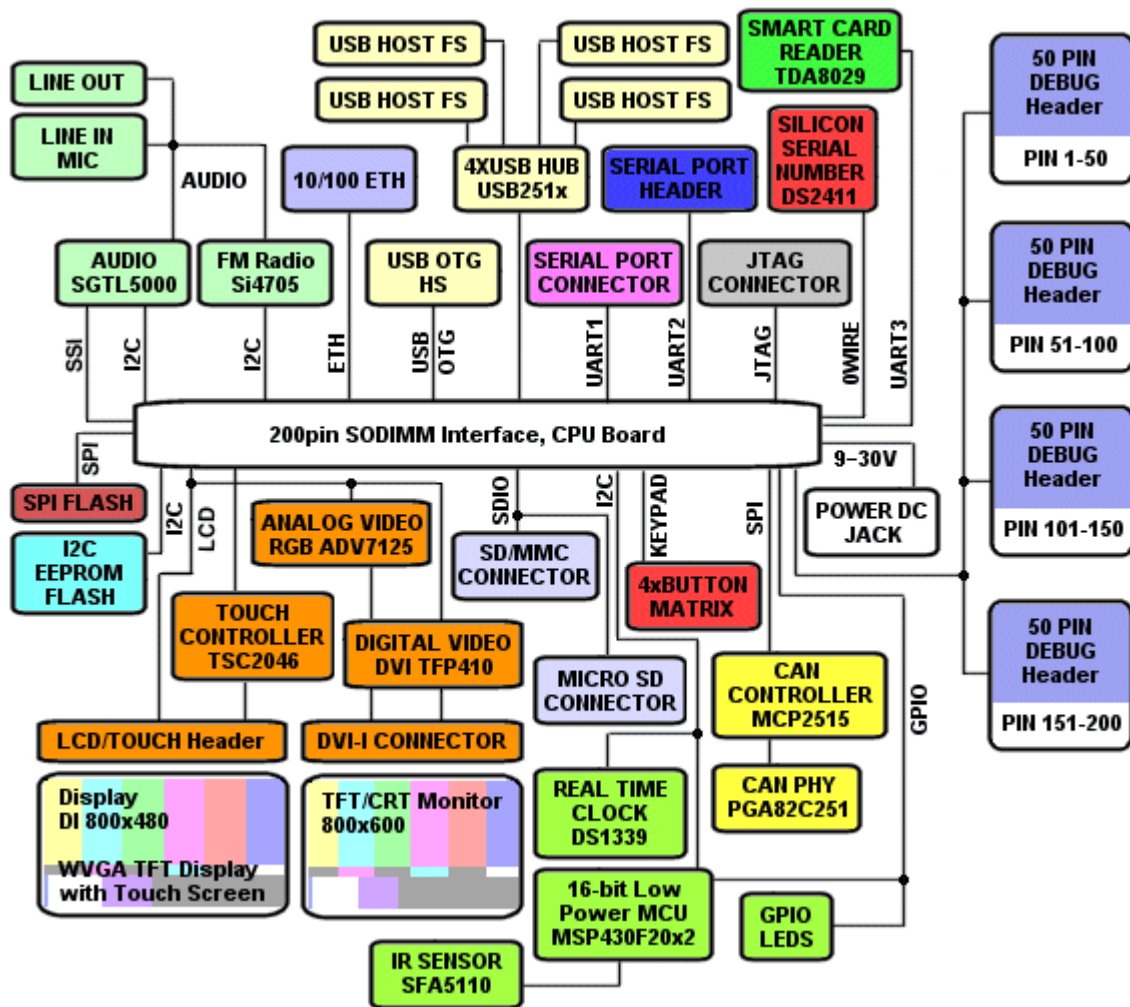
Voipac i.MX25 Baseboard is designed to be used as development platform for Voipac i.MX25 SODIMM Module. Together they create a low power system with excellent MIPS/mW performance allowing deployment in situation where power source is limited. Besides the standard PC peripheral interfaces, the system provides numerous communication channels as well as universal expansion slots and connectors.

1.2 Software

Voipac fully supports Linux operating system with drivers for all basic interfaces. Custom additional drivers for specific applications can be developed upon request.

Operating system	Description
Linux	Linux 2.6 with drivers for most common interfaces
Android	Android Gingerbread 2.3 (UNDER DEVELOPMENT)
Windows CE	Windows CE 6.0 (UNDER DEVELOPMENT)
QNX	

1.3 Hardware - Blockdiagram



1.4 Features

Interface	Type	Description
POWER SUPPLY		9-30V, 15W max
SERIAL	DB9M-RA	RS-232, 115200 bps, 8n1
CAN	DB9F-RA	CONTROLLER AREA NETWORK
VIDEO	DVI-I (Dual Link)	800x600, 60Hz, 16bit, DIGITAL+ANALOG
ETHERNET	RJ-45	10/100 Mbps
AUDIO OUT	3,5mm JACK	STEREO, $R_{load} = 32 \Omega$
AUDIO IN	3,5mm JACK	LINE IN
Secure Digital	microSD™ /MMCSD	
USB	USB A / mini USB	4xUSB Host, 1xUSB 2.0 OTG Host/Device
Smart Card Reader		
IR		
FM RADIO		

1.5 Reference Documents

For more detailed technical information about the Voipac i.MX25 SODIMM Module components, please refer to the web resources and documents listed below.

Component	Description
i.MX25 Freescale Processor	Freescale data sheet IMX25CEC.pdf
SMSC LAN8700 Ethernet Controller	smc LAN8700.pdf
TPS65053 POWER MGMT IC	ti_tps65053.pdf
MICRON NAND Flash Memory	micron_partscatalog_nand_flash/mass_storage.html
MICRON SDRAM Memory	micron_sdram_256MSDRAM.pdf
I2C EEPROM	atmel AT24C512BN-SN-TCT
SPI FLASH	sst/products/SST25VF016B , sst/products/SST25VF032B

For more detailed technical information about the Voipac i.MX25 Baseboard components, please refer to the web resources and documents listed below.

Component	Type	Description
LM2599S	Power supply	http://www.national.com/pf/LM/LM2599.html
ADV7125	VGA driver,	http://www.analog.com/en/prod/0,,ADV7125_00.html
DS1339	RTC,	http://www.maxim-ic.com/ds1339
MIC2026	USB,PWR MMC/microSD	http://www.micrel.com/_PDF/mic2026.pdf
SGTL5000	AUDIO	http://cache.freescale.com/files/analog/doc/ref_manual/SGTL5000RM.pdf
Si4705	FM RECEIVER	http://www.silabs.com/products/audiovideo/fmreceivers/Pages/Si470405.aspx

Component	Type	Description
SFH5110	IR SENSOR	http://www.w-r-e.de/robotik/data/sfh5110.pdf
TDA8029	Smart Card Reader	http://www.nxp.com/documents/data_sheet/TDA8029.pdf
TFP410	DVI	http://focus.ti.com/docs/prod/folders/print/TFP410.html
TSC2046	Touch Screen	http://focus.ti.com/docs/prod/folders/print/TSC2046.html
USB2514	USB	http://www.mouser.com/catalog/specsheets/2514.pdf
PCA82C251	CAN	http://www.nxp.com/documents/data_sheet/PCA82C251.pdf
MSP430F20x2	POWER	http://focus.ti.com/docs/prod/folders/print/MSP430F2012.html
MAX3232	RS-232	http://pdfserv.maxim-ic.com/en/ds/MAX3222-MAX3241.pdf
MCP2515	CAN	http://ww1.microchip.com/downloads/en/DeviceDoc/21801d.pdf
SST25VF016B	SPI Serial FLASH	http://www.sst.com/dotAsset/40371
AT24C512	POWER	http://www.atmel.com/dyn/resources/prod_documents/doc1116.pdf
DS2411	Silicon Serial Number	http://datasheets.maxim-ic.com/en/ds/DS2411.pdf

2. Features Description

2.1 User Interfaces

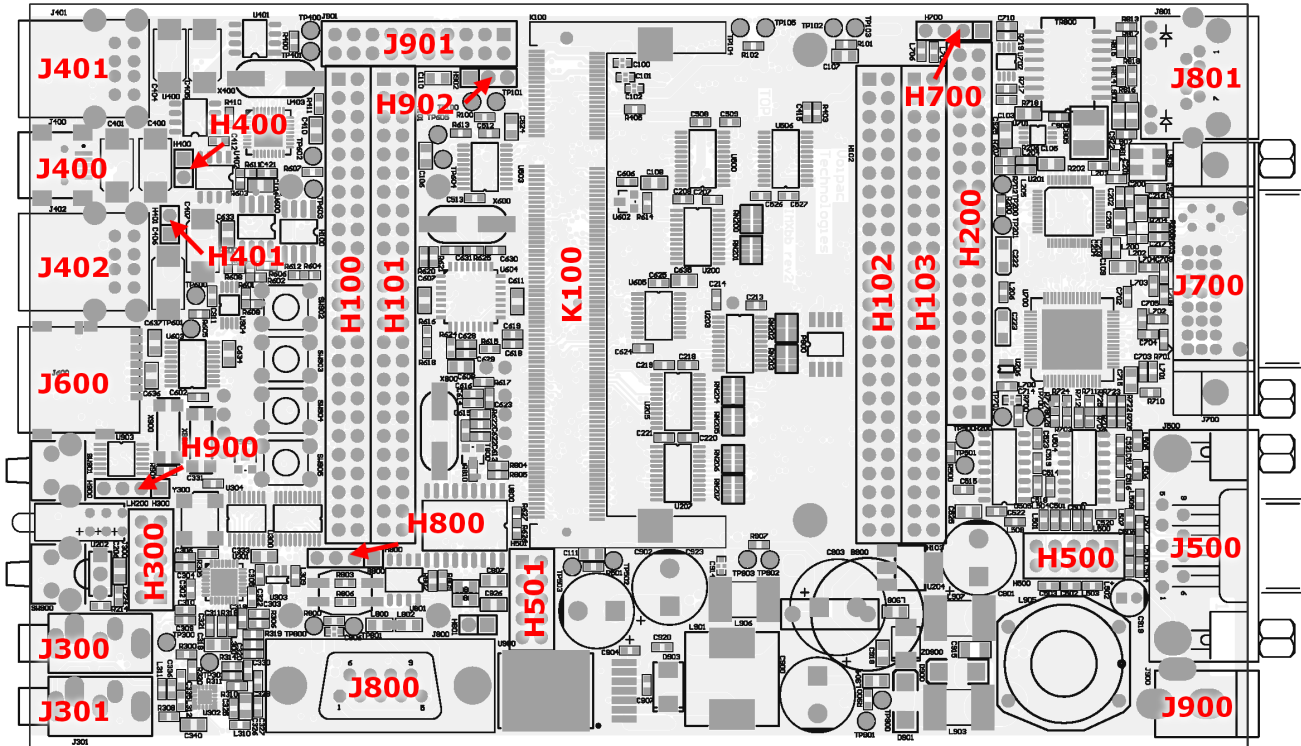
The following user interfaces are available on the Voipac i.MX25 baseboard.

Interface	Description
DVI-I	Maximum resolution 800x600
Generic LCD	2x13pin, 2.54mm pin header, active or passive LCD panel
Touch Screen	4-wire resistive touch screen interface
Ethernet	10/100Mb
USB	4xHost and 1xOTG, PC2PC networking supported
Serial	1xRS232 and 1xTTL 3.3V level serial
CAN	CONTROLLER AREA NETWORK
IR	
SD/MMC	Serial IO peripherals

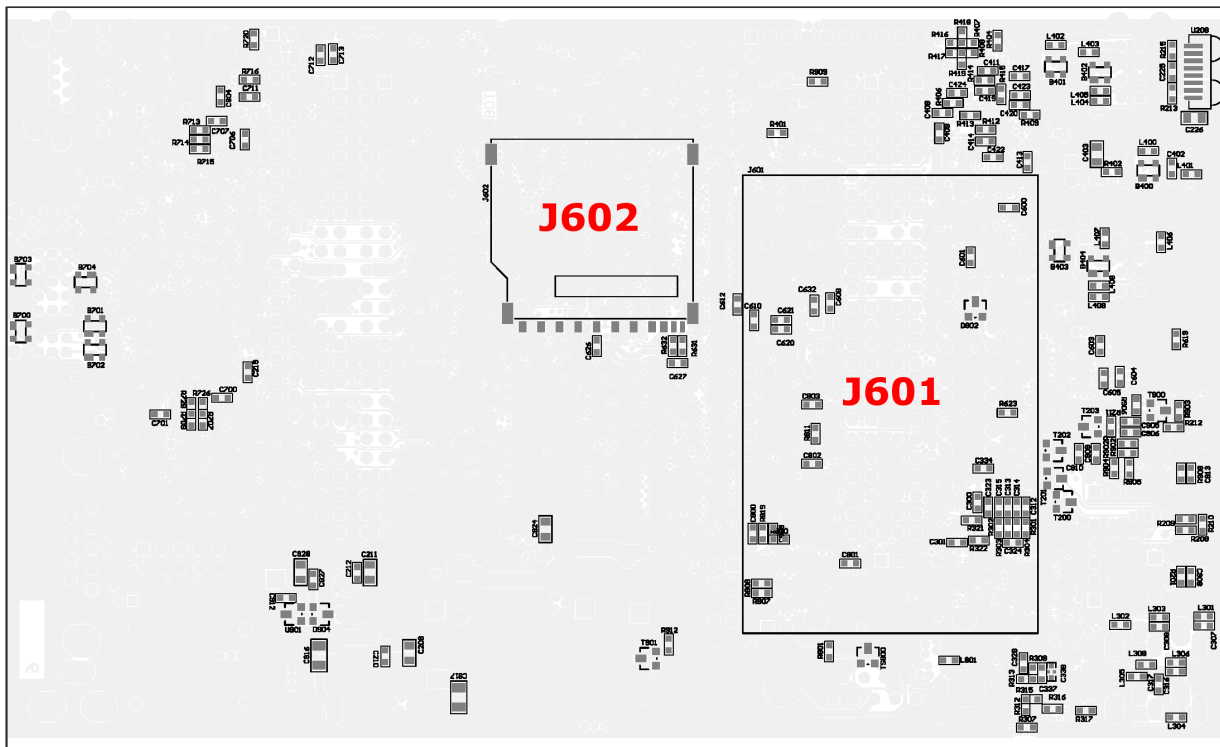
2.2 Board Layout

The top and bottom component placement on the next page shows interfaces layout of the baseboard. Voipac i.MX25 SODIMM module features full 16 bit interfaces to on board SDRAM. Since not all i.MX25 interfaces have dedicated pins some functions could not be used simultaneously. The Smart Card Reader and MMCSocket sockets are on the bottom side.

TOP SIDE



BOTTOM SIDE



2.3 Connector and Jumper list

Reference	Type	Description	Page
K100	SODIMM	DDR1 2.5V SODIMM 200pin connector	9
H100	DEBUG	2x25pin, 2,45mm header	15
H101	DEBUG	2x25pin, 2,45mm header	16
H102	DEBUG	2x25pin, 2,45mm header	18
H103	DEBUG	2x25pin, 2,45mm header	19
H200	LCD	2x20pin, 2,45mm header	21
H300	AUDIO	2x5pin, 2,45mm header	22
J300	AUDIO OUT	Jack stereo 3.5mm	22
J301	AUDIO IN	Jack stereo 3.5mm	22
H400	USB VBUS	1x2pin, 2,45mm header	23
H401	USB ID	1x2pin, 2,45mm header	23
J400	USB DEVICE	5pin mini USB A	23
J401	USB HOST	2xUSB-Host stacked	23
J402	USB HOST	2xUSB-Host stacked	24
H500	UART2	2x5pin, 2,45mm header	24
H501	SPI	2x5pin, 2,45mm header	25
J500	UART1	DSUB9 male	25
J600	microSD™	microSD™ connector	25
J601	Smart Card Reader		26
J602	SD	MMCSA connector	26
H700	I2C	1x4pin, 2,45mm header	27
J700	DVI-I	DVI-I (Dual Link) connector	27
H800	CAN	1x4pin, 2,45mm header	28
H801		1x2pin, 2,45mm header	28
J800	CAN PHY	DSUB9 female	29
J801	ETHERNET	RJ-45	29
B900	BATT	CR1220 Battery holder	29
H900	MSP430 PROG	1x4pin, 2,45mm header	30
H902	BOOTMODE	1x3pin, 2,45mm header	30
J900	POWER IN	Power jack 5.5/2.1mm	30
J901	JTAG	2x10pin, 2.54mm header	30
P900	JTAG	Molex 47041-0001, board-to-board pitch compression connector	31

3. Connector Description

This chapter describes the connectors of the Voipac i.MX25 Baseboard. Some connectors have dedicated functionality, but some like TFT can be used also for other purposes, like general purpose IO (GPIO) or general expansion bus.

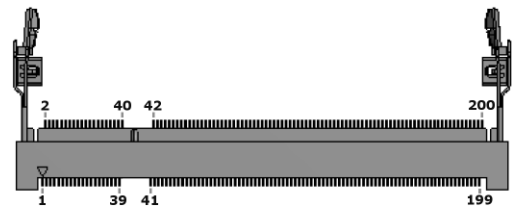
3.1 IO Types Notation

Signal	Description
IN	Digital CMOS input
OUT	Digital CMOS output
IO	Digital CMOS input / output
ANALOG	Analog
3V3	
GND	Ground
PWR	Power supply
NVDD_DR_YICE	
AOUT	Analog Output
AIO	Analog Input/Output
AIN	Analog Input

3.2 Pinout Description

3.2.1 K100 SODIMM (SODIMM 200pin)

Manufacturer: Tyco Electronics, Part No. 6-1473005-1,
<http://www.tyco.com>



Pin	Function	Pin Name	Type	Description
1	VIN		PWR	Module power supply input (3.0V-5.5V)
2	VIN		PWR	
3	VIN		PWR	
4	VIN		PWR	
5	VOUT		PWR	3.3V power supply output (up to 0.2A)
6	VOUT		PWR	
7	VOUT		PWR	
8	BOOTMODE		3V3	Boot mode select H: Boot from NAND / L: Boot from UART/USB
9	VOUT		PWR	3.3V power supply output (up to 0.2A)
10	VOUT		PWR	

Pin	Function	Pin Name	Type	Description
11	VOUT		PWR	
12	VOUT		PWR	
13		BAT_VDD	PWR	DRYICE backup power supply input (max. 1.55V)
14			NC	Not Connected
15		VSTBY_ACK	3V3	"Pulse" indication on finish of internal system reset, by visibility of "hreset_b" signal. After reset, this pin can be used for other purposes.
16	#POR		3V3	Power On Reset - active low input signal. Typically a push button reset. Pull low to force a reset. Leave unconnected or connect to 3V3 if unused. 63.5kΩ pull-up resistor.
17	RESET_IN_B	RESET_IN_B	3V3	Master Reset - external active low Schmitt trigger input signal. When this signal goes active, all modules (except the reset module, SDRAMC module, and the clock control module) are reset.
18	GND		GND	
19	ETN_TXN		ANALOG	Transmit Data Negative: 100Base-TX or 10Base-T differential transmit output to magnetics.
20	#ETN_LINKLED		3V3	Active low LINK ON indication: Active indicates that the link is on.
21	ETN_TXP		ANALOG	Transmit Data Positive: 100Base-TX or 10Base-T differential transmit output to magnetics.
22	ETN_3V3		PWR	+3.3V analog power supply output to magnetics
23	ETN_RXN		ANALOG	Receive Data Negative: 100Base-TX or 10Base-T differential receive input from magnetics.
24	#ETN_ACTLED		3V3	Active low ACTIVITY indication: Active indicates that there is Carrier sense (CRS) from the active PMD.
25	ETN_RXP		ANALOG	Receive Data Positive: 100Base-TX or 10Base-T differential receive input from magnetics.
26	GND		GND	
27	USBH_VBUSEN	D9	3V3	Active high external 5V supply enable. This pin is used to enable the external VBUS power supply.
28	#USBH_OC	D8	3V3	Active low over-current indicator input connected to a GPIO. This signal can be used as an input only. 10kΩ pull-up resistor.
29	USBH_DM	USBPHY2_DM	ANALOG	D- pin of the USB cable
30			NC	Not Connected
31	USBH_DP	USBPHY2_DP	ANALOG	D+ pin of the USB cable
32	GND		GND	
33	USBOTG_ID	USBPHY1_UID	3V3	ID pin of the USB cable. For an A-Device ID is grounded. For a BDevice ID is floated.
34	USBOTG_VBUSEN	GPIO_A	3V3	Active high external 5V supply enable. This pin is used to enable the external VBUS power supply.
35	USBOTG_DM	USBPHY1_DP	ANALOG	D- pin of the USB cable
36	#USBOTG_OC	GPIO_B	3V3	Active low over-current indicator input connected to a GPIO. 10kΩ pull-up resistor.
37	USBOTG_DP	USBPHY1_DP	ANALOG	D+ pin of the USB cable
38	USBOTG_VBUS	USBPHY1_VBUS	ANALOG	VBUS pin of the USB cable. This pin is used for the VBUS comparator inputs.
39		GND	GND	

Pin	Function	Pin Name	Type	Description
40	I2C_DATA	I2C1_DAT	3V3	I2C Data
41	I2C_CLK	I2C1_CLK	3V3	I2C Clock
42	PWM	PWM	3V3	PWM Output
43	OWDAT	RTCK	3V3	1-Wire bus. Requires an external pull-up resistor. The recommended resistor is specified by the generic 1-Wire device used in a given system.
44	CSPI_SS0	CSPI1_SS0	3V3	Slave Select (Selectable polarity) signal
45	CSPI_SS1	CSPI1_SS1	3V3	Slave Select (Selectable polarity) signal
46	CSPI_MOSI	CSPI1_MOSI	3V3	Master Out/Slave In signal
47	CSPI_MISO	CSPI1_MISO	3V3	Master In/Slave Out signal
48	CSPI_SCLK	CSPI1_SCLK	3V3	Serial Clock signal
49	CSPI_RDY	CSPI1_RDY	3V3	Serial Data Ready signal
50	GND		GND	
51	SD1_CD	BCLK	3V3	SD Card Detect – connected to a GPIO
52	SD1_D[0]	SD1_DATA0	3V3	SD Data bidirectional signals—If the system designer does not want to make use of the internal pull-up, via the Pull-up enable register, a 50 K–69 K external pull up resistor must be added.
53	SD1_D[1]	SD1_DATA1	3V3	
54	SD1_D[2]	SD1_DATA2	3V3	
55	SD1_D[3]	SD1_DATA3	3V3	
56	SD1_CMD	SD1_CMD	3V3	SD Command bidirectional signal
57	SD1_CLK	SD1_CLK	3V3	SD Output Clock
58	GND		GND	
59	UART1_TXD	UART1_TXD	3V3	Transmit Data output signal
60	UART1_RXD	UART1_RXD	3V3	Receive Data input signal
61	UART1_RTS	UART1_RTS	3V3	Request to Send input signal
62	UART1_CTS	UART1_CTS	3V3	Clear to Send output signal
63	UART2_TXD	UART2_TXD	3V3	Transmit Data output signal
64	UART2_RXD	UART2_RXD	3V3	Receive Data input signal
65	UART2_RTS	UART2_RTS	3V3	Request to Send input signal
66	UART2_CTS	UART2_CTS	3V3	Clear to Send output signal
67	UART5_TXD	ECB	3V3	Transmit Data output signal
68	UART5_RXD	LBA	3V3	Receive Data input signal
69	UART5_RTS	CS5	3V3	Request to Send input signal
70	UART5_CTS	CS4	3V3	Clear to Send output signal
71	GND		GND	
72	KP_COL[0]	3V3	3V3	Keypad Column selection signals.
73	KP_COL[1]	KPP_COL1	3V3	
74	KP_COL[2]	KPP_COL2	3V3	
75	KP_COL[3]	KPP_COL3	3V3	
76	TXCAN	GPIO_C	3V3	Module specific function
77	KP_ROW[0]	KPP_ROW0	3V3	Keypad Row selection signals.
78	KP_ROW[1]	KPP_ROW1	3V3	

Pin	Function	Pin Name	Type	Description
79	KP_ROW[2]	KPP_ROW2	3V3	
80	KP_ROW[3]	KPP_ROW3	3V3	
81	RXCAN	GPIO_D	3V3	Module specific function
82	GND		GND	
83	SSI1_INT	EXT_ARMCLK	3V3	GPIO
84	SSI1_RXD	EB1	3V3	Receive serial data
85	SSI1_TXD	EB0	3V3	Transmit serial data
86	SSI1_CLK	OE	3V3	Serial clock
87	SSI1_FS	RW	3V3	Frame Sync
88	GND		GND	
89	SSI2_INT	UPLL_BYPCLK	3V3	GPIO
90	SSI2_RXD	POWER_FAIL	3V3	Receive serial data
91	SSI2_TXD	GPIO_E	3V3	Transmit serial data
92	SSI2_CLK	GPIO_F	3V3	Serial clock
93	SSI2_FS	VSTBY_REQ	3V3	Frame Sync
94	GND		GND	
95			NC	Not Connected
96			NC	Not Connected
97			NC	Not Connected
98			NC	Not Connected
99			NC	Not Connected
100			NC	Not Connected
101			NC	Not Connected
102	GND		GND	
103	CSI_D0	CSI_D2	3V3	Sensor port data
104	CSI_D1	CSI_D3	3V3	Sensor port data
105	CSI_D2	CSI_D4	3V3	Sensor port data
106	CSI_D3	CSI_D5	3V3	Sensor port data
107	CSI_D4	CSI_D6	3V3	Sensor port data
108	CSI_D5	CSI_D7	3V3	Sensor port data
109	CSI_D6	CSI_D8	3V3	Sensor port data
110	CSI_D7	CSI_D9	3V3	Sensor port data
111	GND		GND	
112	CSI_HSYNC	CSI_HSYNC	3V3	Sensor port horizontal sync
113	CSI_VSYNC	CSI_VSYNC	3V3	Sensor port vertical sync
114	CSI_PIXCLK	CSI_PIXCLK	3V3	Sensor port data latch clock
115	CSI_MCLK	CSI_MCLK	3V3	Sensor port master clock
116	GND		GND	
117	GPIO	CLKO	3V3	Clock out pin from CRM, clock source is controlable and can also be used for debug.

Pin	Function	Pin Name	Type	Description
118	CONTRAST	CONTRAST	3V3	
119	LD0	LD0	3V3	LCD Data Bus
120	LD1	LD1	3V3	LCD Data Bus
121	LD2	LD2	3V3	LCD Data Bus
122	LD3	LD3	3V3	LCD Data Bus
123	LD4	LD4	3V3	LCD Data Bus
124	LD5	LD5	3V3	LCD Data Bus
125	GPIO	A13	3V3	
126	GPIO	A15	3V3	
127	LD6	LD6	3V3	LCD Data Bus
128	LD7	LD7	3V3	LCD Data Bus
129	GND		GND	
130	LD8	LD8	3V3	LCD Data Bus
131	LD9	LD9	3V3	LCD Data Bus
132	LD10	LD10	3V3	LCD Data Bus
133	LD11	LD11	3V3	LCD Data Bus
134	GPIO	A16	3V3	Signal for common electrode driving signal preparation (Sharp panel dedicated signal).
135	GPIO	A14	3V3	Sampling start signal for left and right scanning.
136	LD12	LD12	3V3	LCD Data Bus
137	LD13	LD13	3V3	LCD Data Bus
138	LD14	LD14	3V3	LCD Data Bus
139	LD15	LD15	3V3	LCD Data Bus
140	LD16 / GPIO	D15	3V3	LCD Data Bus
141	LD17 / GPIO	D14	3V3	LCD Data Bus
142	GND		GND	
143	HSYNC	HSYNC	3V3	Line Pulse or HSync
144	VSYNC	VSYNC	3V3	Frame Sync or Vsync—This signal also serves as the clock signal output for gate; driver (dedicated signal SPS for Sharp panel HRTFT)
145	OE_ACD	OE_ACD	3V3	Alternate Crystal Direction/Output Enable
146	LSCLK	LSCLK	3V3	Shift Clock
147	GND		GND	
148	GPIO	A10	3V3	
149	GPIO	A17	3V3	
150	GPIO	A18	3V3	
151	GPIO	A19	3V3	
152	GPIO	A20	3V3	
153	GPIO	A21	3V3	
154	GPIO	A22	3V3	
155	GPIO	A23	3V3	
156	GPIO	A24	3V3	

Pin	Function	Pin Name	Type	Description
157	GPIO	A25	3V3	
158	GPIO	CS0	3V3	
159	GPIO	CS1	3V3	
160	GND		GND	
161	D[0]	D[0]	3V3	
162	D[1]	D[1]	3V3	
163	D[2]	D[2]	3V3	
164	D[3]	D[3]	3V3	
165	D[4]	D[4]	3V3	
166	D[5]	D[5]	3V3	
167	D[6]	D[6]	3V3	
168	D[7]	D[7]	3V3	
169	A[0]	A[0]	3V3	
170	A[1]	A[1]	3V3	
171	GND		GND	
172	TAMPER_A	TAMPER_A	NVDD_DR YICE	DRYICE external tamper detect pins, active high. If either TAMPER_A or TAMPER_B asserted, then external tampering is detected. Should be tied to pull-down if no tamper detection is required on board.
173	TAMPER_B	TAMPER_B	NVDD_DR YICE	
174	MESH_C	MESH_C	NVDD_DR YICE	Wire-mesh tamper detect pins which can be routed at the PCB board to detect attempted tampering of a protected wire. MESH_C is active high and should be connected to an on-board pull-down if no tamper detection is required. MESH_D is active low and should be connected to an on-board pull-up if no tamper detection is required.
175	MESH_D	MESH_D	NVDD_DR YICE	
176	A[2]	A[2]	3V3	
177	A[3]	A[3]	3V3	
178	A[4]	A[4]	3V3	
179	A[5]	A[5]	3V3	
180	A[6]	A[6]	3V3	
181	A[7]	A[7]	3V3	
182	A[8]	A[8]	3V3	
183	GND		GND	
184	REF	REF	ANALOG	Touchscreen ADC External reference voltage (2.5 V). REF may be left floating if the internally generated 2.5 V supply is enabled. Use of an external reference is recommended.
185	XN	XN	ANALOG	Touchscreen ADC input channels
186	XP	XP	ANALOG	
187	YN	YN	ANALOG	
188	YP	YP	ANALOG	
189	WIPER	WIPER	ANALOG	
190	INAUX0	INAUX0	ANALOG	General purpose measurements channels
191	INAUX1	INAUX1	ANALOG	General purpose measurements channels

Pin	Function	Pin Name	Type	Description
192	INAUX2	INAUX2	ANALOG	
193	NVCC_DRYICE	NVCC_DRYICE	PWR	DRYICE power supply output. Source can be SoC supply or backup supply. This pin can be used to power external tamper detect components.
194	A [9]	A [9]	3V3	
195	A [11]	A [11]	3V3	
196	A [12]	A [12]	3V3	
197			NC	Not Connected
198			NC	Not Connected
199			NC	Not Connected
200	GND		GND	

3.2.2 H100 DEBUG (2x25pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1	5V	PWR	Baseboard power supply output 5V (up to ?A)
2	5V	PWR	Baseboard power supply output 5V (up to ?A)
3	3V3	PWR	Module power supply output 3,3V (up to ?A)
4	3V3	PWR	Module power supply output 3,3V (up to ?A)
5	RESET IN		
6		NC	Not Connected
7		NC	Not Connected
8	USBH1_PEN		
9	USBO_ID		
10		NC	Not Connected
11	HSI2C_CLK		
12	OWIRE		
13	CSPI1_RDY		
14	SD1_CD		
15	SD1_CLK		
16	UART1_TXD		
17	UART2_RTS		
18	UART3_TXD		
19	KEY_COL1		
20	KEY_COL3		
21	KEY_ROW4		
22	SSI1_INT		

Pin#	Pin Name	Type	Description
23	SSI2_INT		
24	SSI2_TXD		
25	SD2_DATA1		
26	SD2_DATA3		
27	CS11_D2		
28	CS11_D4		
29	CS11_VSYNC		
30	CS11_MCLK		
31	DISP1_DAT4		
32	DISP1_DAT6		
33	GND	GND	
34	DISP1_DAT13		
35	DISP1_DAT19		
36	DISP1_DAT21		
37	DISP1_OE_ACD		
38	GND	GND	
39	GPIO5		
40	GPIO7		
41	#EIM_CS0		
42	#EIM_CS4		
43	#EIM_RW		
44	GND	GND	
45	EIM_A21		
46	EIM_A23		
47	EIM_DA1		
48	EIM_DA3		
49	EIM_DA9		
50	EIM_DA11		

3.2.3 H101 DEBUG (2x25pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1	VIO		
2	VIO		
3	VBUP		
4	#RESET_OUT		
5		NC	Not Connected

Voipac i.MX25 Baseboard Datasheet



Pin#	Pin Name	Type	Description
6		NC	Not Connected
7		NC	Not Connected
8		NC	Not Connected
9		NC	Not Connected
10	GND	GND	
11	CSPI1_SS1		
12	CSPI1_MISO		
13	SD1_DATA1		
14	SD1_DATA3		
15	UART1_RTS		
16	UART2_TXD		
17	UART3_RTS		
18	GND	GND	
19	KEY_ROW0		
20	KEY_ROW2		
21	SSI1_TXD		
22	SSI1_FS		
23	SSI2_FS		
24	SD2_CD		
25	SD2_CLK		
26	CS11_D0		
27	CS11_D6		
28	GND	GND	
29	DISP1_DAT0		
30	DISP1_DAT2		
31	DISP1_DAT8		
32	DISP1_DAT10		
33	DISP1_DAT15		
34	DISP1_DAT17		
35	DISP1_DAT23		
36	DISP1_HSYNC		
37	GPIO1		
38	GPIO3		
39	GPIO9		
40	GPIO11		
41	#EIM_EB0		
42	#EIM_OE		
43	EIM_A17		
44	EIM_A19		
45	EIM_A25		

Pin#	Pin Name	Type	Description
46	GND	GND	
47	EIM_DA5		
48	EIM_DA7		
49	EIM_DA13		
50	EIM_DA15		

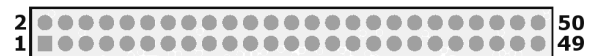
3.2.4 H102 DEBUG (2x25pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1	5V		
2	5V		
3	3V3		
4	3V3		
5	GND	GND	
6	PHY_LINK		
7	GND	GND	
8	#USBH1_OC		
9	USBO_PEN		
10	#USBO_OC		
11	PWM		
12	CSPI1_SS0		
13	GND	GND	
14	SD1_DATA0		
15	GND	GND	
16	UART1_RXD		
17	UART2_CTS		
18	UART3_RXD		
19	KEY_COL2		
20	KEY_COL4		
21	GND	GND	
22	SSI1_RXD		
23	SSI2_RXD		
24	SSI2_CLK		
25	SD2_DATA2		
26	SD2_CMD		
27	CS11_D3		
28	CS11_D5		

Pin#	Pin Name	Type	Description
29	CSI1_PIXCLK		
30	GND	GND	
31	DISP1_DAT5		
32	DISP1_DAT7		
33	DISP1_DAT12		
34	DISP1_DAT14		
35	DISP1_DAT20		
36	DISP1_DAT22		
37	DISP1_SCLK		
38	GPIO0		
39	GPIO6		
40	GPIO8		
41	#EIM_CS1		
42	#EIM_WAIT		
43	EIM_BCLK		
44	EIM_A16		
45	EIM_A22		
46	EIM_A24		
47	EIM_DA2		
48	EIM_DA4		
49	EIM_DA10		
50	EIM_DA12		

3.2.5 H103 DEBUG (2x25pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1	VIO		
2	BOOTMODE		
3	POWER_ON		
4	#POR		
5	PHY_VDDA		
6	PHY_ACT		
7	USBH1_VBUS		
8	GND	GND	
9	USBO_VBUS		
10	HSI2C_DAT		
11	CSPI1_MOSI		

Voipac i.MX25 Baseboard Datasheet



Pin#	Pin Name	Type	Description
12	CSP11_SCLK		
13	SD1_DATA2		
14	SD1_CMD		
15	UART1_CTS		
16	UART2_RXD		
17	UART3_CTS		
18	KEY_COL0		
19	KEY_ROW1		
20	KEY_ROW3		
21	SSI1_CLK		
22	GND	GND	
23	GND	GND	
24	SD2_DATA0		
25	GND	GND	
26	CSI1_D1		
27	CSI1_D7		
28	CSI1_HSYNC		
29	DISP1_DAT1		
30	DISP1_DAT3		
31	DISP1_DAT9		
32	DISP1_DAT11		
33	DISP1_DAT16		
34	DISP1_DAT18		
35	GND	GND	
36	DISP1_VSYNC		
37	GPIO2		
38	GPIO4		
39	GPIO10		
40	GND	GND	
41	#EIM_EB1		
42	#EIM_LBA		
43	EIM_A18		
44	EIM_A20		
45	EIM_A26		
46	EIM_DA0		
47	EIM_DA6		
48	EIM_DA8		
49	EIM_DA14		
50	GND	GND	

3.2.6 H200 LCD (2x20pin, 2.54mm header)



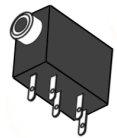
Pin#	Pin Name	Type	Description
1	GND	GND	
2	PCLK	OUT	Pixel Clock
3	LCLK	OUT	Line Pulse or Hsync
4	FCLK	OUT	Frame Sync or Vsync—This signal also serves as the clock signal output for gate; driver (dedicated signal SPS for Sharp panel HRTFT)
5	GND	GND	
6	LDD18	OUT	LCD Data Bus
7	LDD19	OUT	LCD Data Bus
8	LDD20	OUT	LCD Data Bus
9	LDD21	OUT	LCD Data Bus
10	LDD22	OUT	LCD Data Bus
11	LDD23	OUT	LCD Data Bus
12	GND	GND	
13	LDD10	OUT	LCD Data Bus
14	LDD11	OUT	LCD Data Bus
15	LDD12	OUT	LCD Data Bus
16	LDD13	OUT	LCD Data Bus
17	LDD14	OUT	LCD Data Bus
18	LDD15	OUT	LCD Data Bus
19	GND	GND	
20	LDD2	OUT	LCD Data Bus
21	LDD3	OUT	LCD Data Bus
22	LDD4	OUT	LCD Data Bus
23	LDD5	OUT	LCD Data Bus
24	LDD6	OUT	LCD Data Bus
25	LDD7	OUT	LCD Data Bus
26	GND	GND	
27	BIAS	OUT	Alternate Crystal Direction/Output Enable
28	VLCD	PWR	Module power supply output 3,3V (up to ?A)
29	PSAVE	OUT	
30	LGPI01	IO	
31	LGPI00	IO	
32	LPWM	OUT	
33	5V	PWR	Baseboard power supply output 5V (up to ?A)
34	5V	PWR	Baseboard power supply output 5V (up to ?A)
35	GND	GND	
36	GND	GND	
37	TSMX	AIN	Touch screen ADC input channel X-

Pin#	Pin Name	Type	Description
38	TSMY	AIN	Touch screen ADC input channel X+
39	TSPX	AIN	Touch screen ADC input channel Y-
40	TSPY	AIN	Touch screen ADC input channel Y+

3.2.7 H300 AUDIO (2x5pin, 2.54mm header)

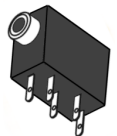


Pin#	Pin Name	Type	Description
1	VDDA	PWR	Baseboard power supply output 5V (up to ?A)
2	VAUD	PWR	Module power supply output 3,3V (up to ?A)
3	LINEOUT_L		
4	LINEOUT_R		
5	VSSA	GND	Analog GND
6	GND	GND	
7	LINEIN_L		
8	LINEIN_R		
9	MIC		
10	MIC_BIAS		



3.2.8 J300 AUDIO OUT (Jack stereo 3.5mm)

Pin#	Pin Name	Type	Description
1	LEFT	AOUT	Line out left channel
2	RIGHT	AOUT	Line out right channel
3	AGND	PWR	Audio Ground



3.2.9 J301 AUDIO IN (Jack stereo 3.5mm)

Pin#	Pin Name	Type	Description
1	LEFT	AIN	Line in left channel
2	RIGHT	AIN	Line in right channel
3	AGND	PWR	Audio Ground

3.2.10 H400 USB VBUS (1x2pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1	USB0_VBUS	PWR	VBUS power
2	5V	PWR	

3.2.11 H401 USB ID (1x2pin, 2.54mm header)



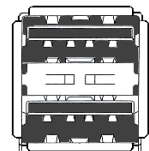
Pin#	Pin Name	Type	Description
1	GND	GND	
2	USB0_ID	IN	ID pin of the USB cable. For an A-Device ID is grounded. For a BDevice ID is floated.

3.2.12 J400 USB DEVICE (5pin mini USB A Connector)



Pin#	Pin Name	Type	Description
1	USB0_VBUS	PWR	External Power supply (connected to +5V when device plugged in)
2	USB0_DM	IO	USB Device Data-
3	USB0_DP	IO	USB Device Data+
4	USB0_ID	IN	USB ID: Not used
5	GND	PWR	Ground

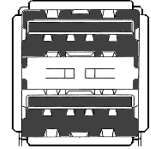
3.2.13 J401 USB HOST (2 x USB-Host Stacked)



Pin#	Pin Name	Type	Description
A1	PWR1	PWR	Power supply (connected to +5V when GPIOx is low)
A2	USBDN1_DM	IO	USB Host Data1-
A3	USBDN1_DP	IO	USB Host Data1+
A4	GND	PWR	Ground
B1	PWR2	PWR	Power supply (connected to +5V when GPIOx is low)
B2	USBDN2_DM	IO	USB Host Data2-

Pin#	Pin Name	Type	Description
B3	USBDN2_DP	IO	USB Host Data2+
B4	GND	PWR	Ground

3.2.14 J402 USB HOST (2 x USB-Host Stacked)



Pin#	Pin Name	Type	Description
A1	PWR3	PWR	Power supply (connected to +5V when GPIOx is low)
A2	USBDN3_DM	IO	USB Host Data3-
A3	USBDN3_DP	IO	USB Host Data3+
A4	GND	PWR	Ground
B1	PWR3	PWR	Power supply (connected to +5V when GPIOx is low)
B2	USBDN3_DM	IO	USB Host Data4-
B3	USBDN3_DP	IO	USB Host Data4+
B4	GND	PWR	Ground

3.2.15 H500 UART2 (2x5pin, 2.54mm header)



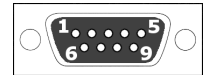
Pin#	Pin Name	Type	Description
1			
2	UART2_RXD_RS232	IN	Receive Data input signal
3	UART2_TXD_RS232	OUT	Transmit Data output signal
4			
5	GND	GND	
6			
7	UART2_RTS_RS232	OUT	Request to Send input signal
8	UART2_CTS_RS232	IN	Clear to Send output signal
9		NC	Not Connected
10		NC	Not Connected

3.2.16 H501 SPI (2x5pin, 2.54mm header)



Pin#	Pin Name		Description
1	VSPI	PWR	Module power supply output 3,3V (up to ?A)
2	#RESET_OUT_3V3	3V3	
3	CSPI1_SS0_3V3	3V3	Slave Select (Selectable polarity) signal
4	CSPI1_SS1_3V3	3V3	Slave Select (Selectable polarity) signal
5	CSPI1_RDY_3V3	3V3	Serial Data Ready signal
6	GND	GND	
7	CSPI1_MISO_3V3	3V3	Master In/Slave Out signal
8	CSPI1_MOSI_3V3	3V3	Master Out/Slave In signal
9	GND	GND	
10	CSPI1_SCLK_3V3	3V3	Serial Clock signal

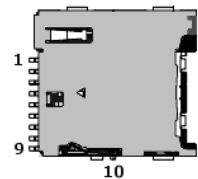
3.2.17 J500 UART1 (DSUB9 Male Connector)



Pin#	Pin Name	Type	Description
1	FF_DCD	IN	Carrier Detect
2	FF_RXD	IN	Receive Data
3	FF_TXD	OUT	Transmit Data
4	FF_DTR	OUT	Data Terminal Ready
5	GND	PWR	Ground
6	FF_DSR	IN	Data Set Ready
7	FF_RTS	OUT	Request to Send
8	FF_CTS	IN	Clear to Send
9	FF_RI	IN	Ring Indicator

3.2.18 J600 microSD™ (Connector)

Manufacturer: KYOCERA, Part No. microSD™ 04 5138 008 010 890,
<http://www.kyocera-elco.com>

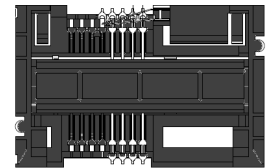


Pin#	Pin Name	Type	Description
1	DAT2	IO	SD Data bidirectional signals
2	DAT3/CD	IO	SD Data bidirectional signals
3	CMD		SD Command bidirectional signal
4	VMMC	PWR	Module power supply output 3,3V (up to ?A)

Pin#	Pin Name	Type	Description
5	CLK	OUT	SD Output Clock
6	VSS	GND	
7	DAT0	IO	SD Data bidirectional signals
8	DAT1	IO	SD Data bidirectional signals
9	CD	IN	
10	COM	GND	
11	SHLD	GND	
12	SHLD	GND	
13	SHLD	GND	
14	SHLD	GND	

3.2.19 J601 Smart Card Reader (Connector)

Manufacturer: FCI, Part No. 7334L2625F04LF, <http://www.fciconnect.com>

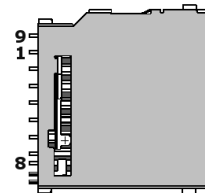


Pin#	Pin Name	Type	Description
1	VDD		
2	RST		
3	CLK		
4	C4		
5	CD		
6	C8		
7	IO		
8	PRG		
9	VSS		
10	COM		

3.2.20 J602 MMC/SD (Connector)

Manufacturer: Multicomp, Part No. SD SDCMF-10915W010, <http://www.farnell.com>

The hardware supported card detect feature is implemented by GPIO53 and software write protect detection using GPIO52.



Pin#	Pin Name	Type	Description
1	MMDAT[3]	IO	SD/SDIO Data 3 or MMC Chip Select 1
2	MMCMD	IN	MMC and SD/SDIO command and response tokens.

Pin#	Pin Name	Type	Description
3	GND	GND	Ground
4	VCC	PWR	Module power supply output 3,3V (up to ?A)
5	MMCLK	IN	MMC and SD/SDIO Card Bus Clock
6	GND	GND	Ground
7	MMDAT[0]	IO	MMC and SD/SDIO Data 0
8	MMDAT[1]	IO	MMC and SD/SDIO Data 1
9	MMDAT[2]	IO	SD/SDIO Data 2 or MMC Chip Select 0
10	CD	IN	MMC/SD Card Detect, connected to GPIO53
11	WP	IN	MMC/SD Write Protect, connected to GPIO52

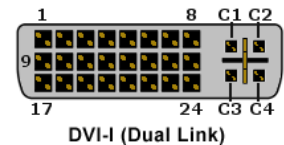
3.2.21 H700 I2C (1x4pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1	3V3		Module power supply output 3,3V (up to ?A)
2	I2C_SCL		I2C Clock
3	I2C_SDA		I2C Data
4	GND	GND	

3.2.22 J700 DVI-I (Dual-Link Connector)

Manufacturer: JAE, Part No. DV2R029N11E, <http://www.jae.co.jp>



Pin#	Pin Name	Type	Description
1	TXD2-		TMDS Data2-
2	TXD2+		TMDS Data2+
3	TXD24SH	GND	TMDS Data2/4 Shield
4	TXD4-	NC	Not Connected
5	TXD4+	NC	Not Connected
6	SCL		DDC Clock 5V
7	SDA		DDC Data 5V
8	VSYNC	AOUT	Analog Vertical Sync
9	TXD1-		TMDS Data1-
10	TXD1+		TMDS Data1+

Pin#	Pin Name	Type	Description
11	TXD13SH	GND	TMDS Data1/3 Shield
12	TXD3-	NC	Not Connected
13	TXD3+	NC	Not Connected
14	5VSUS	PWR	+5V Power
15	GND	GND	
16	HTPLG	NC	Not Connected
17	TXD0-		TMDS Data0-
18	TXD0+		TMDS Data0+
19	TXD05SH	GND	TMDS Data0/5 Shield
20	TXD5-	NC	Not Connected
21	TXD5+	NC	Not Connected
22	TXCSH	GND	TMDS Clock Shield
23	TXC+		TMDS Clock +
24	TXC		TMDS Clock -
25	SHLD1	GND	Shield
26	SHLD2	GND	Shield
C1	VGA_RED	AOUT	Analog Red
C2	VGA_GREEN	AOUT	Analog Green
C3	VGA_HSYNC	AOUT	Analog Blue
C4	VGA_VSYNC	AOUT	Analog Horizontal Sync

3.2.23 H800 CAN (1x4pin, 2.54mm header)



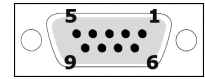
Pin#	Pin Name	Type	Description
1	VCAN	PWR	Module power supply output 3,3V (up to ?A)
2	TXCAN		
3	GND	GND	
4	RXCAN		

3.2.24 H801 (1x2pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1			
2			

3.2.25 J800 CAN PHY (DSUB9 Female Connector)



Pin#	Pin Name	Type	Description
1	5V	NC	Not Connected
2	CAN_L		Dominant Low
3	GND	GND	
4		NC	Not Connected
5		NC	Not Connected
6	GND	GND	
7	CAN_H		Dominant High
8	GND	GND	
9	5V	NC	Not Connected

3.2.26 J801 ETHERNET (RJ-45)

Manufacturer: TYCO ELECTRONICS , Part No. RJ45RA 2-406549-1

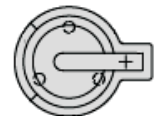
<http://www.tycoelectronics.com>



Pin#	Pin Name	Type	Description
1	TXP	OUT	ETH Transmit+
2	TXN	OUT	ETH Transmit-
3	RXP	IN	ETH Receive+
4	LAN45+	PWR	Power over LAN cable supply (7-30 V)
5	LAN45+	PWR	Power over LAN cable supply (7-30 V)
6	RXN	IN	ETH Receive-
7	LAN78	PWR	Power over LAN Ground
8	LAN78	PWR	Power over LAN Ground

3.2.27 B900 BATT (CR1220 Battery holder)

Manufacturer: KEYSTONE, Part No. BH-500, <http://www.keyelco.com>



Pin#	Pin Name	Type	Description
1	VBUP	PWR	Battery +
2	GND	PWR	Ground

3.2.28 H900 MSP430 PROG (1x4pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1	VBUP	PWR	
2	SBWCK		
3	SBWIO		
4	GND	GND	

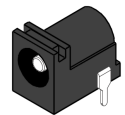
3.2.29 H902 BOOTMODE (1x3pin, 2.54mm header)



Pin#	Pin Name	Type	Description
1	VIO	PWR	
2	BOOTMODE	IN	0 = Internal Boot, 1 = Serial Boot
3	GND	GND	

BOOTMODE: 0 Internal Boot Executing ROM code
 1 Serial Boot USB/UART

3.2.30 J900 POWER IN (Power jack 5.5/2.1mm)



Pin#	Pin Name	Type	Description
1	VCC	PWR	Power supply (input voltage 7-30V DC)
2	GND	PWR	Ground

3.2.31 J901 JTAG (2x10pin, 2.54mm header)

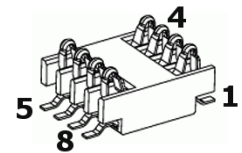


Pin#	Pin Name	Type	Description
1	VREF	PWR	Reference JTAG Interface Voltage (connected to +3.3V)
2	VDD	PWR	Power supply (connected to +3.3V)
3	nTRST	IN	JTAG reset
4	VSS	PWR	Ground

Pin#	Pin Name	Type	Description
5	TDI	IN	JTAG Data input
6	VSS	PWR	Ground
7	TMS	IN	JTAG mode select
8	VSS	PWR	Ground
9	TCK	IN	JTAG clock
10	VSS	PWR	Ground
11	RTCK	OUT	Not used
12	VSS	PWR	Ground
13	TDO	OUT	JTAG Data output
14	VSS	PWR	Ground
15	nSRST	IN	System Reset
16	VSS	PWR	Ground
17	DBGRRQ	IN	Not used
18	VSS	PWR	Ground
19	DBGACK	OUT	Not used
20	VSS	PWR	Ground

3.2.32 P900 JTAG (board-to-board pitch compression connector)

Manufacturer: Molex , Part No. 47041-0001, <http://www.molex.com>



Pin#	Pin Name	Type	Description
1	nSRST	PWR	System Reset
2	TDI	PWR	JTAG Data input
3	TDO	IN	JTAG Data output
4	TCK	IN	JTAG clock
5	nTRST	IN	JTAG reset
6	TMS	OUT	JTAG mode select
7	GND	IN	Ground
8	VREF	IN	Reference JTAG Interface Voltage Connected to

4. Technical Specifications

4.1 Input Voltage

Voipac i.MX25 Baseboard on board 5V switching power supply has input voltage ranging from 9V to 30V. Maximum output current of the regulator is 3A thus limiting baseboard, module and all connected peripherals to 15W maximum power consumption.

4.2 Mechanical

Dimensions	Width	Height	Length	Unit
PCB	105	1.5	165	mm
Aluminium Case	112	30	168	mm

4.3 Temperature Range

Symbol	Description	Min	Max	Unit
T_AMB	Operating temperature range	-25	85	°C

4.4 RoHS and WEEE Compliance

All of the products designed and manufactured by Voipac Technologies are classified as Electrical and Electronic Equipment (EEE) under the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment 2002/95/EC (RoHS). To comply with the RoHS directive, the restricted use of Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent Chromium (Cr 6+), Polybrominated Biphenyls (PBB) and Polybrominated Diphenyl Ethers (PBDE) must be ensured. Voipac Technologies guarantees that products ordered after July 1, 2006 are assembled in full compliance with the RoHS directive from the European Parliament and Counsel. The company procedures also complies with the Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE) .

5. Compatibility

Voipac i.MX25 SODIMM module can be used as a replacement for KARO Electronics TX25 Module. This chapter points out the differences for a smooth transition.

5.1 KARO Electronics TX25 Module

Voipac i.MX25 SODIMM Module and TX25 share exactly the same pin mapping regarding all SODIMM pins.

6. Support

All the relevant communication should be executed via e-mails preferably. Response time is up to 48 hours, except state holidays and weekends. Voipac Technologies working hours are: 8:00 - 17:00, Monday – Friday.

To claim warranty and RMA number assignment, please fill in this [protocol/problem description form](#) and send it to: reclamations@voipac.com.

Board warranty without the protocol/problem description will not be processed.

For more information, see our [General Terms and Conditions](#).

Besides the free-of-charge support, we provide support for your new designs when it comes to the special drivers for the peripherals not included in the Voipac development kits, design of your own base boards, prototyping, or even new products development, please contact: support@voipac.com for more info.

By [registering on Voipac's Internet Customer Details site](#), you will be granted to access the [Voipac Ticketing System](#), where you can post support request tickets and receive e-mail notifications upon any change of your ticket's status.

7. Distributors

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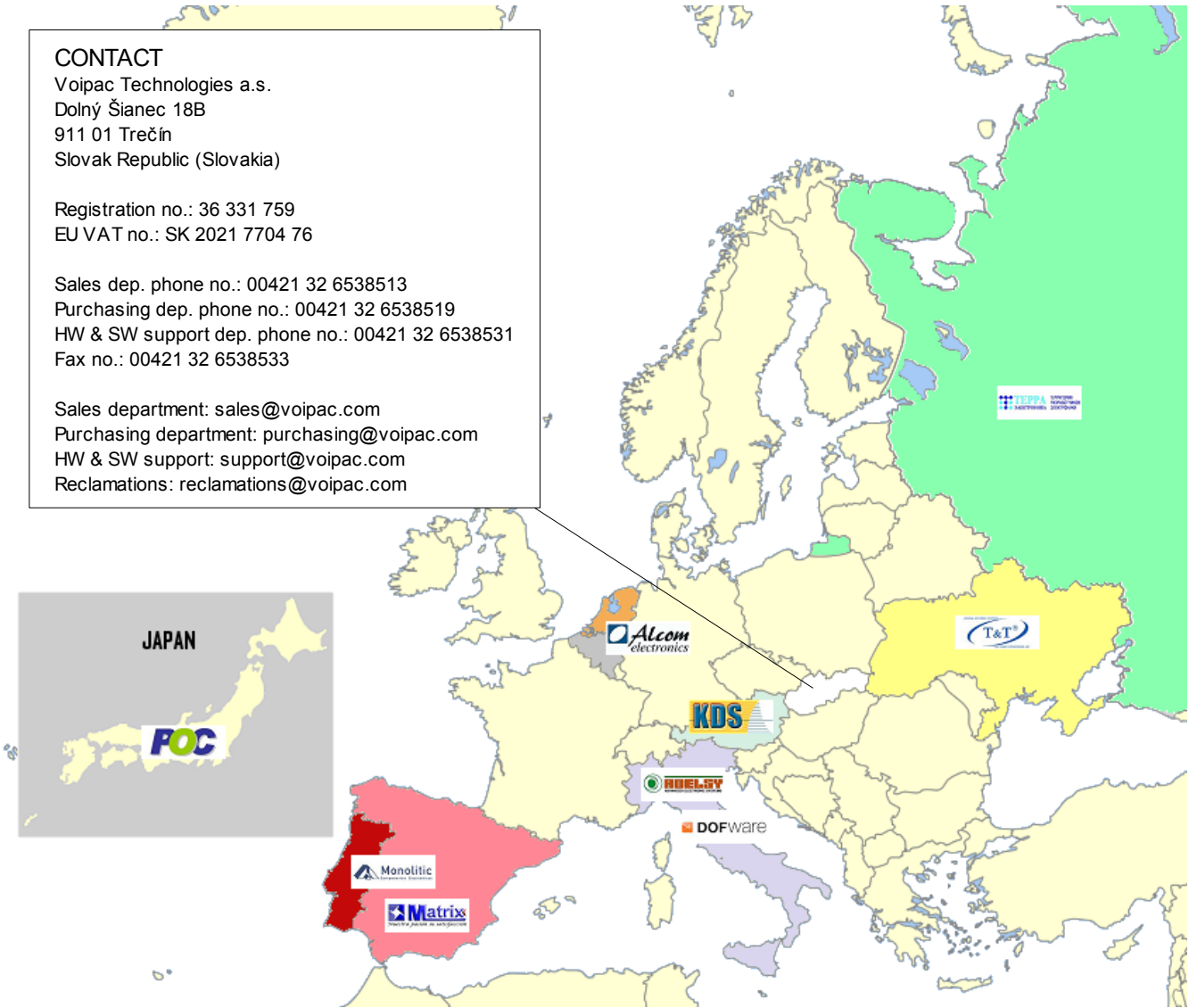
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Warranty:

Voipac Technologies a.s. Does Not Bear Responsibility for the Following:

- Failure of a product resulting from misuse, accident, modification, unsuitable operating environment, or improper maintenance by user
- Unless otherwise agreed in written, a product does not include technical support and the customer may be able to purchase technical support under separate agreement
- Any technical or other support provided under warranty by Voipac Technologies a.s. such as assistance, set-up and installation is provided WITHOUT WARRANTY OF ANY KIND.

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