FORTEC ELEKTRONIK AG

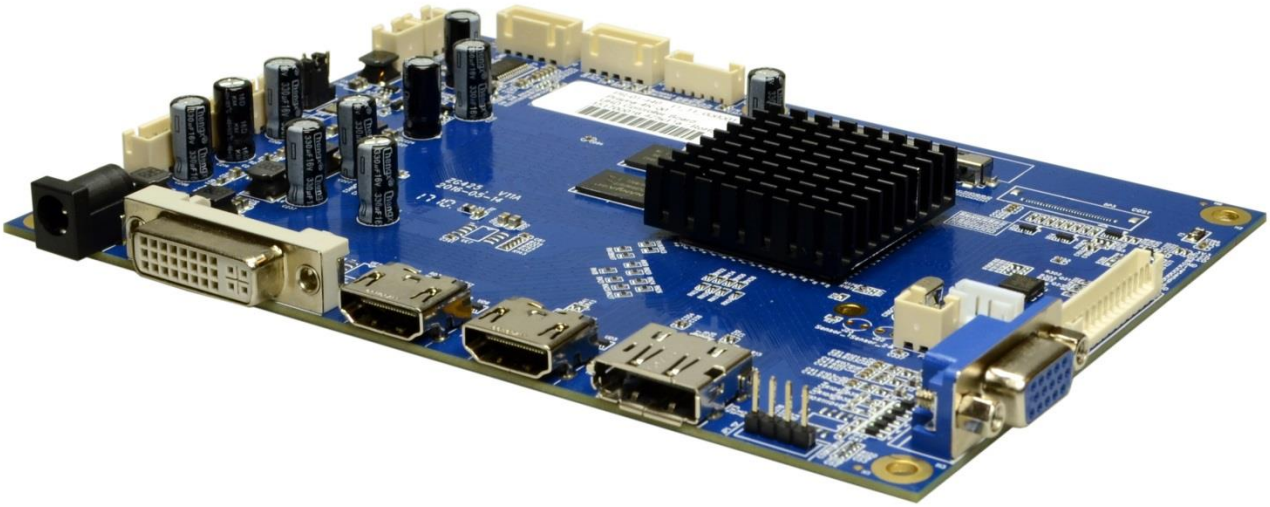
DATA DISPLAY GROUP

Preliminary Datasheet

Prisma-4K-00

UHD Controller Board

PR-01-440



Version 1.0.11

18.01.2018

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1 Revision History

Date	Rev.No.	Description	Page
24.02.2017	1.0.0	Initial version	All
28.02.2017	1.0.1	Connector Overview updated Supported Panel list updated	13 19
09.03.2017	1.0.2	MHL2.1 description added	5
14.03.2017	1.0.3	Product renamed to Prisma-4K-00 Mechanical Specifications added Reference KIT added	All 11 20
27.03.2017	1.0.4	J18: V-by-One Connector description updated	18
28.03.2017	1.0.5	Reference KIT/ SmartLED-IV ordering code updated	20
02.05.2017	1.0.6	T_{ST} updated Pictures updated	9 12
15.11.2017	1.0.7	Remote Control via UART and DDC/CI on request Light and Temperature Sensor on request Supported Panels: S400DJ1-KS5 added	6 6 19
08.12.2017	1.0.8	Current consumption updated Power Supply Connector J2 updated External Power Module Supply Connector J20 updated	10 15 16
19.12.2017	1.0.9	Typing error in chapter 9.5.6 fixed Connector reference in chapter 9.5.3 fixed to J16 9.5.7 to 9.5.12, Chapter numbers fixed Last page updated	15 16 16 21
08.01.2018	1.0.10	DDC/CI control added	6
18.01.2018	1.0.11	J8 description updated J20 mirrored according to the PCB layout	15 16

2 General description

PRISMA-4K-00 is graphics processing board, providing high quality images for UHD TFT LCD panels, supporting 4K@60Hz resolution signal input and 4K@60Hz resolution image output. It is capable of both 10bit 8-lane V-By-One and 4-lane eDP interfaces with up to 4096x2160 @60Hz resolution.

PRISMA-4K-00 provides HDMI2.0, HDMI1.4/MHL2.1, Dual DVI, VGA and DP1.2 input interfaces and 2x8W(8Ω) stereo speaker output and brightness control by PWM.
High Bandwidth Digital Content Protection (HDCP1.4) is supported in the various input modes.
PRISMA-4K-00 supports PIP and PBP, up to 4-Window PxP with any four sources (4P).
PRISMA-4K-00 supports auto detection for all the input ports and image position/color auto calibration.
PRISMA-4K-00 contains a 12-bit color processing engine and supports programmable 14-bit gamma CLUT; Adobe and sRGB compliance, brightness and color uniformity.

3 General Features

High-Quality Advanced Scaling
- Zoom scaling up and down
- Fully programmable zoom ratios
- Independent horizontal/vertical scaling
- Advanced zoom algorithm provides high image quality
- Sharpness/Smooth filter enhancement
- Support non-linear scaling from 4:3 to 16:9 or 16:9 to 4:3
- PIP and PBP, up to 4-Window PxP with any four sources (4P)

Color Processor
- True 12-bit color processing engine
- Programmable 14-bit gamma support
- Programmable 12-bit 3D gamma support
- xvYCC supported
- Adobe/sRGB compliance
- Advanced dithering logic for the fewer panel
- color depth enhancement
- Dynamic overshoot-smear canceling engine
- Brightness and contrast control

DisplayPort 1.2 Receiver
- Up to 3846x2160@60Hz input support at 6-bit, 8-bit, 10-bit and 12-bit
- Three link layer speed HBR2 (5.4GHz), HBR (2.7GHz), RBR (1.62GHz) are supported
- HDCP1.4 support

Ultra-Reliable HDMI 2.0 Receiver
- Up to 3846x2160@60Hz input support at 6-bit, 8-bit, 10-bit and 12-bit
- HDMI2.0(6GHz), HDMI1.4 (3GHz), MHL2.1 (3GHz) support
- HDCP1.4 (3GHz), MHL2.1 (3GHz) support

Ultra-Reliable HDMI 1.4 Receiver
- Up to 3846x2160@30Hz input support at 6-bit, 8-bit, 10-bit and 12-bit
- HDMI1.4 (3GHz) support
- HDCP1.4 support

Dual Link DVI/HDMI Receiver
- Up to 3846x2160@30Hz input support at 6-bit, 8-bit, 10-bit and 12-bit
- Direct connect to all DVI/HDMI 1.3 and 1.4 compliant TMDS transmitters

Analog RGB Input
- Support Sync-On-Green (SOG) and various kinds of composite sync modes

- YPbPr support up to HDTV 1080p resolution
- Supports up to 1792x1344@60Hz or 1920x1260@60Hz or 1600x1200@75Hz standard modes
- Supports up to 1920x1440@60Hz or 2128x1200@ 60Hz with reduced blanking
- Captures up to 210MHz

V-By-One Interface

- 8-lane up to 4096x2160@60Hz at 8-bit and 10-bit
- Fully programmable display timing generator

eDP HBR2 Interface

- 4-lane up to 4096x2160@60Hz at 8-bit and 10-bit
- Fully programmable display timing generator

Analog Input

- Analog Stereo Voltage Range 0.2 to 2.0 Vrms

Analog Output

- Frequency Response 120Hz - 14000Hz @±3dB
- Speaker Power 2×8W(8Ω) THD+N<10%@1KHz at 12V supply and Audio Input: 0.5VRMS
- Analog Stereo Voltage Range 0.2 to 2.0 Vrms

Power Management

- DC Jack 12V 3A
- Power Supply Module 12V, 5V and 5VSTB
- Lowest Power < 0.2W in Deep Sleep
- Panel Power Supply 5V, 10V, 12V

OSD Control

- Keypad and IR

Remote Control

- DDC/CI
- UART on request

External Sensors

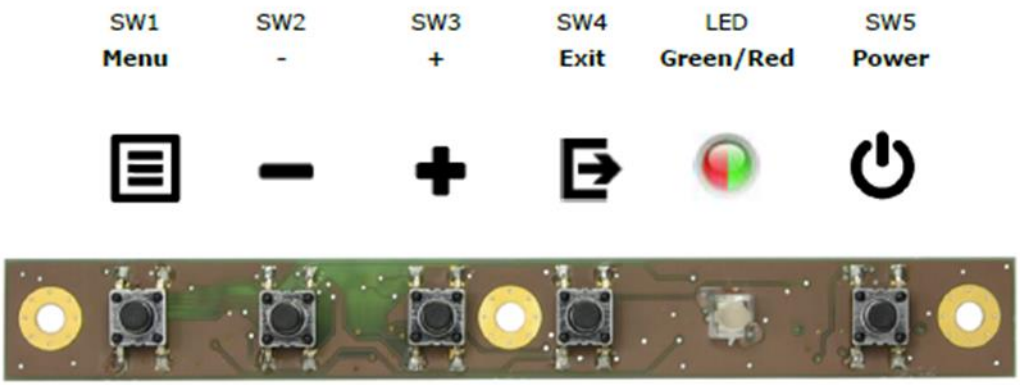
- Light and Temperature Sensor on request

4 OSD Menu and User Controls

The OSD allows selection of input source and fine tuning of various functional parameters like brightness, contrast etc. These parameters can be adjusted via an external interface.

4.1 OSD Control Through External Keypad

The 4-Button Keypad ZU-02-398 (IF398-00), by using at IR / OSD Keypad Connector J20 is fully supported.



The following tables give you an overview about the functionality.

	Menu	-	+	Exit	LED	Power
General					See below	Power ON/OFF
OSD closed	Open OSD	Volume-	Volume+	-		
OSD open	Select	Down/Left/-	Up/Right/+	Exit/Back		

LED Status:

- Green : Signal Found
- Red : Power Safe
- LED OFF : Power OFF

5 On-Screen-Menu (OSM)

TBD

6 Absolute Maximum Ratings

DESCRIPTION	Signal	Min.	Max.	Unit	Note
Supply Voltage	V_{CC}	-0.2	14	VDC	1, 2, 3,4
Storage Temperature	T_{ST}	-20	+60	°C	
Operating Temperature	T_{OP}	0	+40	°C	5
Relative humidity	R_H		80	%	

Note (1): Within operating temperature range.
Note (2): Permanent damage to the device may occur if maximum values are exceeded.
Note (3): Please refer to the panel datasheet for recommended voltage range.
Note (4) Supply voltage limits are for the Prisma-4K-00; inverter supply limits must be met as well, if the inverter is to be powered through the Prisma-4K-00 board.
Note (5) See the derating characteristics below.

6.1 Thermal Derating Characteristics

TBD

7 Electrical Specification

All measurements are done at 25°C ambient temperature and the HDMI2.0 resolution of 3840 x 2160@60Hz

Item	Condition	MIN.	TYP.	MAX.	Unit	Note
Supply Voltage (12V)		11.7	12.0	13.0	VDC	1
Current Consumption	Board Only HDMI2.0	-	0,34	-	A	
Current Consumption	Board Only No Video Source	-	0,24	-	A	
Current Consumption	Board Only Deep Sleep	-	0,02	-	A	
Current Consumption	Panel only at 5V	-	-	3.0	A	
Current Consumption	Panel only at 10V	-	-	3.0	A	
Current Consumption	Panel, Speaker and Backlight at 12V	-	-	3.0	A	

Note (1): Please refer to the TFT panel specification.

7.1 Panel Power Supply Voltage Selection

Panel power supply can be selected by using the PWR switch:

+ 12V J9-1 (default setting)
+ 10V J10
+ 5V J9-2 (only by using the external +5V Panel PWR Input available, see 9.5.11 J20: External Power Module Supply Connector.

7.2 Current Consumption

Two different application cases are taken into account.

Exclude speaker or panel Tcon

Power Supply	Voltage Range	Max Current	Ripple	Note
External Power Module at J20	5VON±5%	1,5A	60mVp-p@25°C	5V STB J20 Pin8
	12V±10%	1,0A	120mVp-p@25°C 200mVp-p@-10°C	J20 Pin1,2
DC Adaptor	12V±10%	2,0A	120mVp-p@25°C 200mVp-p@-10°C	J2 Center pin

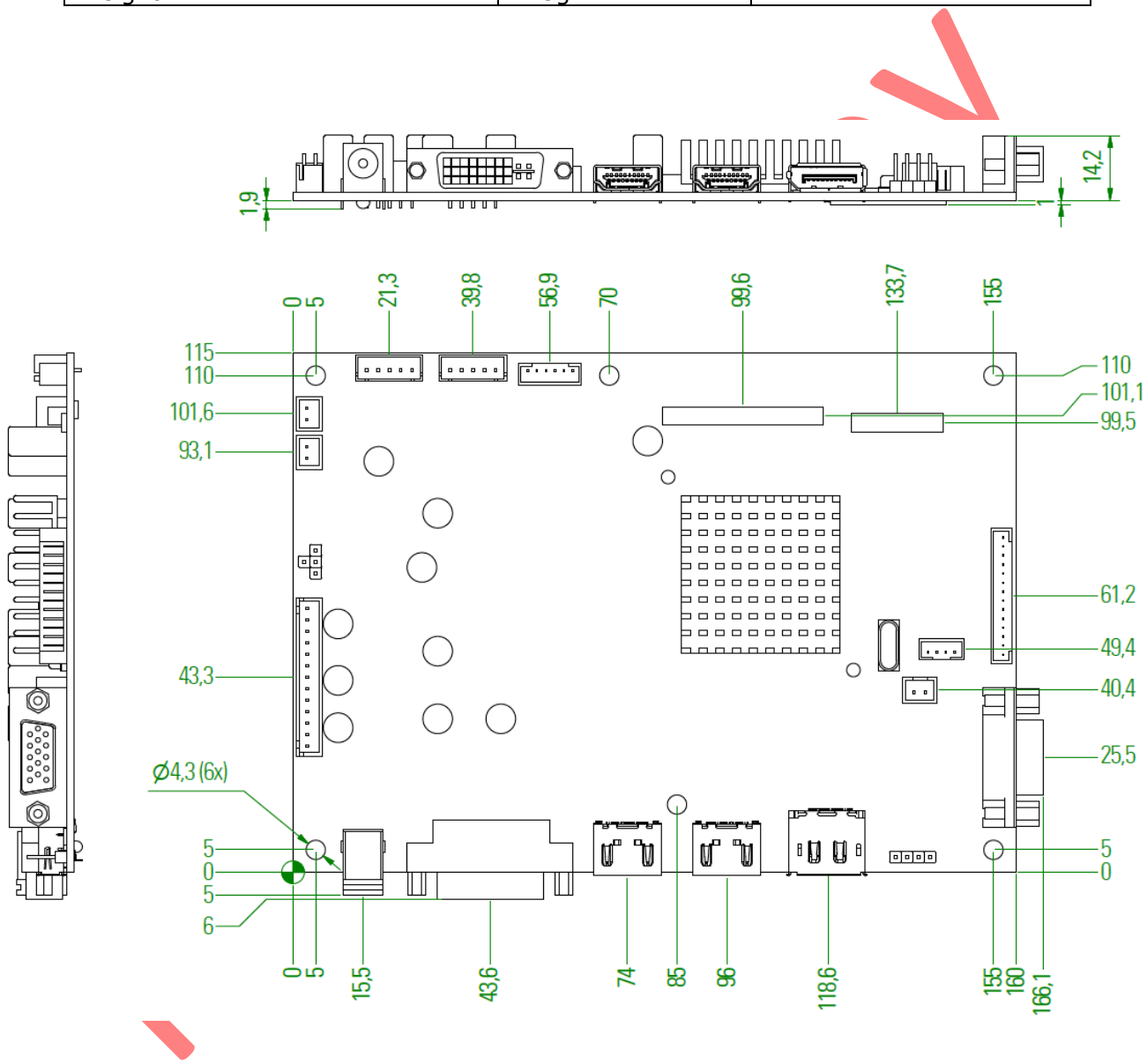
Include speaker and panel Tcon (1)

Power Supply	Voltage Range	Max Current	Ripple	Note
External Power Module at J20	5VON±5%	1,5A	60mVp-p@25°C	5V STB J20 Pin8
	12V±10%	4,0A	120mVp-p@25°C 200mVp-p@-10°C	J20 Pin1,2
DC Adaptor	12V±10%	5,0A	120mVp-p@25°C 200mVp-p@-10°C	J2 Center pin

Note (1): Here Max values means the peak currents the board could carry on, the specific values depend on the speaker and Panel Tcon power consumption.

8 Mechanical Specification

ITEM	DESCRIPTION	REMARKS
Length	160mm	± 0.2 mm
Width	110mm	± 0.2 mm
Height (top side)	13.3 mm	± 0.2 mm
Height (PCB)	1.7mm	± 0.1 mm
Height (bottom side)	3.5mm	± 0.1 mm
Weight	125g	

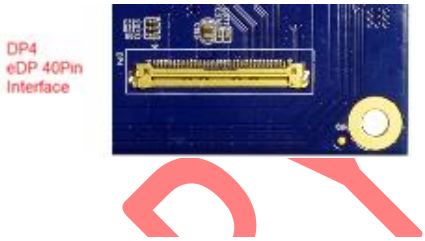


9 Connectors and Switches

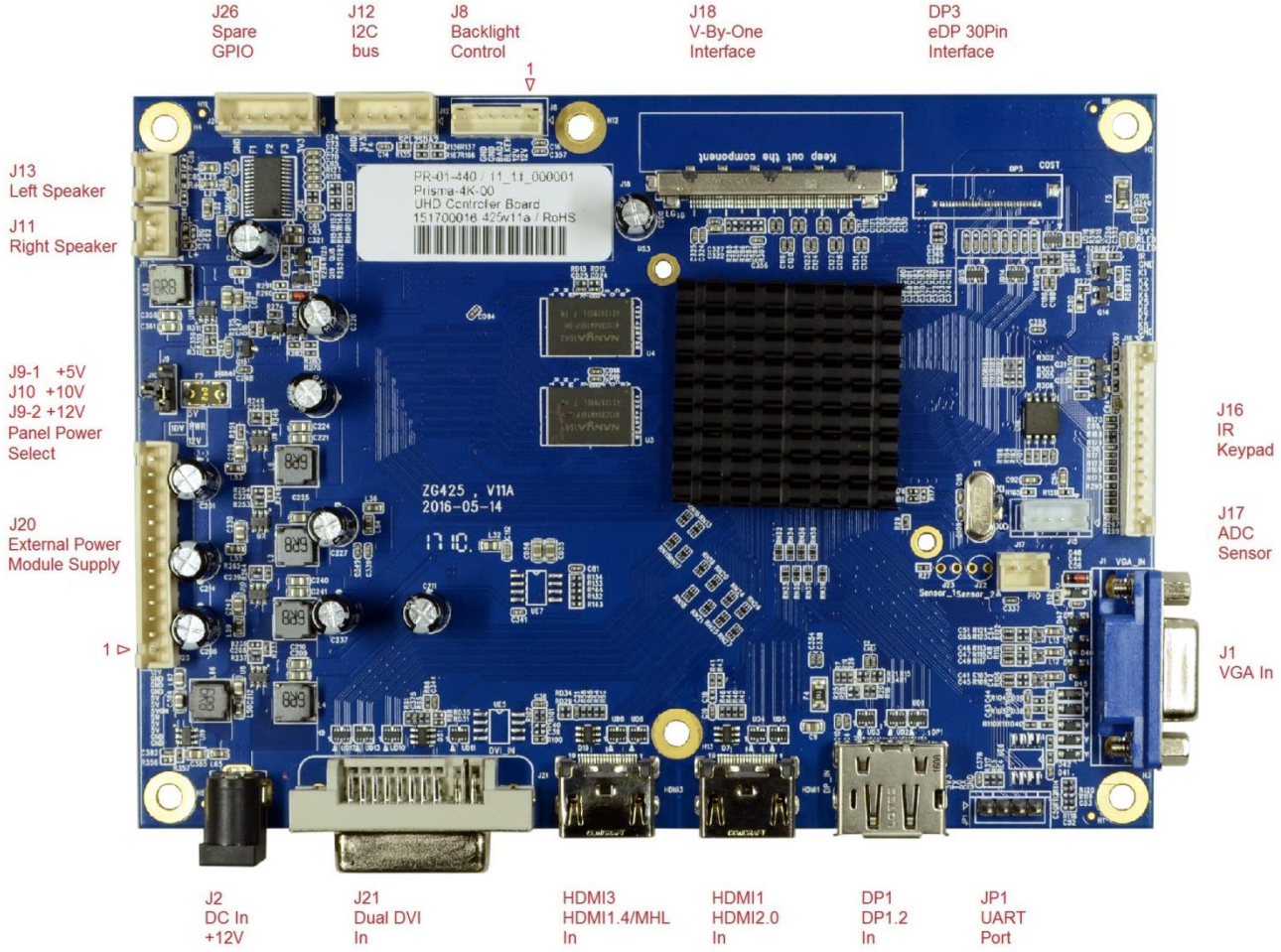
The following drawing shows the input and output interfaces of the PRISMA-4K. The design is implemented as a single printed circuit board.

9.1 Bottom view

The eDP 40Pin connector is placed on the backside of the board.



9.2 Top view



9.3 Front view

9.4 Connector Overview

Connector	DESCRIPTION	TYPE	MANUFACTURER
DP1	DisplayPort Input	3660HF1R	Nexus
DP3	eDP 30Pin Output	20455-030E-02	I-PEX
DP4	eDP 40Pin Output (Bottom)	20455-040E-02	I-PEX
HDMI1	HDMI2.0 Input	3600HFR	Nexus
HDMI3	HDMI1.4 Input	3600HFR	Nexus
J1	Analog VGA Input	15-pin H-DSUB female	---
J2	Power Supply Input	Power Jack 2.0 mm	e.g. Kycon
J8	Backlight Control Output	B6B-PH-K-S 2.0mm	JST
J9, J10	Panel Power Select, TCON Power	4Pin/2.5mm	---
J11	Left Speaker Output	B2B-XH-A	JST
J12	I2C Bus	B5B-XH-A	JST
J13	Right Speaker Output	B2B-XH-A	JST
J16	IR / OSD Keypad	B14B-PH-K-S 2.0mm	JST
J17	ADC Sensor	B2B-XH-A	JST
J18	V-By-One Output	FI-RES51S-HF	JAE
J20	External Power Module Supply Input	B13B-XH-A	JST
J21	Dual DVI Input	DVI-I female	e.g. Molex
J26	Spare GPIO	B5B-XH-A	JST

9.5 Input Connectors

9.5.1 DP1: Display Port Input Connector

Pin	Signal	Description
1	DP3-_IN	Pair-3 negative
2	GND	Ground
3	DP3+_IN	Pair-3 positive
4	DP2-_IN	Pair-2 negative
5	GND	Ground
6	DP2+_IN	Pair-2 positive
7	DP1-_IN	Pair-1 negative
8	GND	Ground
9	DP1+_IN	Pair-1 positive
10	DP0-_IN	Pair-0 negative

Pin	Signal	Description
11	GND	Ground
12	DP0+_IN	Pair-0 positive
13	GND	Ground
14	GND	Ground
15	DPA+_IN	Aux channel positive
16	GND	Ground
17	DPA-_IN	Aux channel negative
18	HPD	Hot Plug Detect
19	Power Return	Return for +3.3V
20	+3.3V_DP	DisplayPort +3.3V

9.5.2 HDMI1: HDMI2.0 Input Connector

Pin	Signal	Description
1	TMDS2+	Differential TMDS Data 2+
2	GND	Ground
3	TMDS2-	Differential TMDS Data 2-
4	TMDS1+	Differential TMDS Data 1+
5	GND	Ground
6	TMDS1-	Differential TMDS Data 1-
7	TMDS0+	Differential TMDS Data 0+
8	GND	Ground
9	TMDS0-	Differential TMDS Data 0-
10	TMDSCLK+	Differential TMDS Clock+

Pin	Signal	Description
11	GND	Ground
12	TMDSCLK-	Differential TMDS Clock-
13	CEC	Consumer Electronic Control
14	Reserved	
15	HDMI_SCL	DDC Clock
16	HDMI_SDA	DDC Data
17	GND	Ground
18	HDMI_VCC	+5V
19	Hot Plug	Hot Plug Detection

9.5.3 HDMI3: HDMI1.4 Input Connector

Pin	Signal	Description
1	TMDS2+	Differential TMDS Data 2+
2	GND	Ground
3	TMDS2-	Differential TMDS Data 2-
4	TMDS1+	Differential TMDS Data 1+
5	GND	Ground

Pin	Signal	Description
11	GND	Ground
12	TMDSCLK-	Differential TMDS Clock-
13	CEC	Consumer Electronic Control
14	Reserved	
15	HDMI_SCL	DDC Clock

6	TMDS1-	Differential TMDS Data 1-
7	TMDS0+	Differential TMDS Data 0+
8	GND	Ground
9	TMDS0-	Differential TMDS Data 0-
10	TMDSCLK+	Differential TMDS Clock+

16	HDMI_SDA	DDC Data
17	GND	Ground
18	HDMI_VCC	+5V
19	Hot Plug	Hot Plug Detection

9.5.4 J1: VGA Input Connector

Pin	Signal	Description
1	RED	Analog Red
2	GREEN	Analog Green
3	BLUE	Analog Blue
4	NC	Not connected
5	GND	Ground
6	GND	Ground
7	GND	Ground
8	GND	Ground

Pin	Signal	Description
9	VGA_5V	Fused VCC
10	GND	Ground
11	NC	Not Connect
12	VGA_SDA	DDC Data
13	HSYNC	Horizontal Sync Input
14	VSYNC	Vertical Sync Input
15	VGA_SCL	DDC Clock

9.5.5 J2: Power Supply Connector

There are two different ways for powering to the board: You could either use only the 12V DC Adaptor, see 9.5.11 J20: External Power Module Supply Connector or J2: Power Supply Connector.

Pin	Signal	Description
Center	+12V	12V Power supply (**up to 5A**)

Pin	Signal	Description
Bottom	GND	Ground

9.5.6 J8: Backlight Control Connector

Pin	Signal	Description
1	VCC	Inverter Power Output
2	VCC	Inverter Power Output
3	BLKEN	Backlight ON/OFF

Pin	Signal	Description
4	BADJ	Backlight PDIM control
5	GND	Ground
6	GND	Ground

Note: Please refer to 9.2Top view for Pin1 location, different to the specification of JST B6B-PH-K-S.

9.5.7 J9, J10: Panel Power Select, TCON Power

For selecting the panel power, please refer to 7.1 Panel Power Supply Voltage Selection**.**

9.5.8 J12: I2C Bus Connector

Pin	Signal	Description
1	GND	Ground
2	+3.3V	VCC +3.3V
3	F4	Interrupter

Pin	Signal	Description
4	SCL2	I2C SCL
5	SDA2	I2C SDA

9.5.9 J16: IR / OSD Keypad Connector

Pin	Signal	Description
1	+3.3V	+3.3V Power supply to keypad and IR
2	RLED	LED Red indicator
3	GLED	LED Green indicator
4	IR	IR
5	GND	Ground
6	K1	Key 1
7	K2	Key 2

Pin	Signal	Description
8	K3	Key 3
9	K4	Key 4
10	K5	Key 5
11	K6	Key 6
12	K7	Key 7
13	K8	Key 8
14	GND	Ground

9.5.10 J17: ADC Sensor Connector

Pin	Signal	Description
1	ADC+	ADC+

Pin	Signal	Description
2	ADC-	ADC-

9.5.11 J20: External Power Module Supply Connector

There are two different ways for powering to the board: You could either use only the 12V DC Adaptor, see 9.5.5 J2: Power Supply Connector or the External Power Module connector J20.

Pin	Signal	Description
1	GND	Ground
2	GND	Ground
3	+5V	+5V Panel PWR Input, 2)
4	+5V	+5V Panel PWR Input, 2)
5	SW	Standby Control Output, 1)
6	+5VON	+5V Input/Output
7	+5V	+5V Panel PWR Input, 2)

Pin	Signal	Description
8	+5V	+5V Panel PWR Input, 2)
9	GND	Ground
10	GND	Ground
11	GND	Ground
12	+12V	+12V Input
13	+12V	+12V Input

Note (1): Use SW, Pin9 for switching the external power supply to the standby mode, e. g. power supply MLT199TL. Output voltage level: 0V for standby mode and +5V for normal operation.
The +5VON input voltage should be always present, even in standby mode. For power consumption, please refer to 7.2 Current Consumption. Internal, +5VON is generated from +12V input by a voltage-converter, that assumes the power supply of Prisma-4K-00, as soon as the external +5VON has fallen below 5.0V.
Note (2): Use +5V Panel PWR Input to supply the +5V-driven-panels by switching the J9-2 to +5V, see 7.1 Panel Power Supply Voltage Selection.

9.5.12 J21: Dual DVI Input Connector

Pin	Signal	Description
1	TMDS2-	Differential TMDS Data 2-
2	TMDS2+	Differential TMDS Data 2+

Pin	Signal	Description
16	DISPDET	Hot Plug Detection
17	TMDS0-	Differential TMDS Data 0-

Pin	Signal	Description
3	GND	TMDS Shield
4	NC	Not connected
5	NC	Not connected
6	DVI_SCL	DDC EDID data clock
7	DVI_SDA	DDC EDID data
8	DVI_VS	Analog VSYNC
9	TMDS1-	Differential TMDS Data 1-
10	TMDS1+	Differential TMDS Data 1+
11	GND	TMDS Shield
12	NC	Not connected
13	NC	Not connected
14	DVI_5V	5V / 100mA Power Supply
15	GND	Ground

Pin	Signal	Description
18	TMDS0+	Differential TMDS Data 0+
19	GND	TMDS Shield
20	NC	Not connected
21	NC	Not connected
22	GND	TMDS Clock Shield
23	TMDSSCL +	Differential TMDS Clock +
24	TMDSCL-	Differential TMDS Clock -
C1	NC	Not connected
C2	NC	Not connected
C3	NC	Not connected
C4	NC	Not connected
C5	NC	Not connected
C6	NC	Not connected

9.6 Output Connectors

9.6.1 J18: V-By-One Connector

Pin	Signal	Description
1	GND	GND
2	TxA0+	Vx1 A lane 7+
3	TxA0-	Vx1 A lane 7-
4	GND	GND
5	TxA1+	Vx1 A lane 6+
6	TxA1-	Vx1 A lane 6-
7	GND	GND
8	TxA2+	Vx1 A lane 5+
9	TxA2-	Vx1 A lane 5-
10	GND	GND
11	TxA3+	Vx1 A lane 4+
12	TxA3-	Vx1 A lane 4-
13	GND	GND
14	TxA4+	Vx1 A lane 3+
15	TxA4-	Vx1 A lane 3-
16	GND	GND
17	TxA5+	Vx1 A lane 2+
18	TxA5-	Vx1 A lane 2-
19	GND	GND
20	TxA6+	Vx1 A lane 1+
21	TxA6-	Vx1 A lane 1-
22	GND	GND
23	TxA7+	Vx1 A lane 0+
24	TxA7-	Vx1 A lane 0-
25	GND	GND
26	LOCKn	LOCKn

Pin	Signal	Description
27	HTPDn	HTPDn
28	8b_10b	Vx1 8bit/10bit Select
29	NC	NC
30	NC	NC
31	NC	NC
32	NC	NC
33	SCL	Vx1 SCL
34	SDA	Vx1 SDA
35	NC	NC
36	NC	NC
37	NC	NC
38	GND	GND
39	GND	GND
40	GND	GND
41	GND	GND
42	GND	GND
43	NC	NC
44	LCD_SVCC	Panel Power
45	LCD_SVCC	Panel Power
46	LCD_SVCC	Panel Power
47	LCD_SVCC	Panel Power
48	LCD_SVCC	Panel Power
49	LCD_SVCC	Panel Power
50	LCD_SVCC	Panel Power
51	LCD_SVCC	Panel Power

9.6.1 DP3: eDP 30Pin Connector

Pin	Signal	Description
1	GND	GND
2	NC	NC
3	BIST	BIST
4	GND	GND
5	Lane_3N	DP Channel 3 Output -
6	Lane_3P	DP Channel 3 Output +
7	GND	GND
8	Lane_2N	DP Channel 2 Output -
9	Lane_2P	DP Channel 2 Output +
10	GND	GND
11	Lane_1N	DP Channel 1 Output -
12	Lane_1P	DP Channel 1 Output +
13	GND	GND
14	Lane_0N	DP Channel 0 Output -
15	Lane_0P	DP Channel 0 Output +

Pin	Signal	Description
16	GND	GND
17	AUX_P	DP Channel Aux +
18	AUX_N	DP Channel Aux -
19	GND	GND
20	HPD	Hot Plug Detect
21	GND	GND
22	NC	NC
23	NC	NC
24	GND	GND
25	NC	NC
26	LCD_SVCC	Panel Power
27	LCD_SVCC	Panel Power
28	LCD_SVCC	Panel Power
29	LCD_SVCC	Panel Power
30	LCD_SVCC	Panel Power

9.6.2 DP4: eDP 40Pin Connector (Bottom)

Pin	Signal	Description
1	NC	NC
2	BL_PWR	Backlight Power
3	BL_PWR	Backlight Power
4	BL_PWR	Backlight Power
5	BL_PWR	Backlight Power
6	NC	NC
7	NC	NC
8	BL_ADJ	Backlight PWM
9	BL_EN	Backlight Enable
10	BL_GND	Backlight GND
11	BL_GND	Backlight GND
12	BL_GND	Backlight GND
13	BL_GND	Backlight GND
14	HPD	Hot Plug Detect
15	LCD_GND	Panel Logic GND
16	LCD_GND	Panel Logic GND
17	LCD_GND	Panel Logic GND
18	LCD_GND	Panel Logic GND
19	NC	NC
20	LCD_SVCC	Panel Power

Pin	Signal	Description
21	LCD_SVCC	Panel Power
22	LCD_SVCC	Panel Power
23	LCD_SVCC	Panel Power
24	GND	GND
25	AUX_N	DP Channel Aux -
26	AUX_P	DP Channel Aux +
27	GND	GND
28	Lane_0P	DP Channel 0 Output +
29	Lane_0N	DP Channel 0 Output -
30	GND	GND
31	Lane_1P	DP Channel 1 Output +
32	Lane_1N	DP Channel 1 Output -
33	GND	GND
34	Lane_2P	DP Channel 2 Output +
35	Lane_2N	DP Channel 2 Output -
36	GND	GND
37	Lane_3P	DP Channel 3 Output +
38	Lane_3N	DP Channel 3 Output -
39	GND	GND
40	NC	NC

10 Supported Panels

Examples of adapted TFT panels and ordering codes.

Manufacturer	Panel	Size [Inches]	Interface	Resolution	Panel Voltage
LG	LM238WR2-SPB1	23,8	eDP 4 lane, 30 pins	3840x2160@60Hz	10V
LG	LM270WR2-SPA1	27,0	eDP 4 lane, 30 pins	3840x2160@60Hz	10V
Innolux	M238DCJ-E50	23,8	eDP 4 lane, 30 pins	3840x2160@60Hz	10V
Innolux	M280DGJ-L30	28,0	V-By-One 8lane, 51 pins	3840x2160@60Hz	12V
Innolux	S400DJ1-KS5	40,0	V-By-One 8lane, 51 pins	3840x2160@60Hz	12V
Innolux	V500DK2-KS1	50,0	V-By-One 8lane, 51 pins	3840x2160@60Hz	12V
Innolux	V580DK2-KS1	58,0	V-By-One 8lane, 51 pins	3840x2160@60Hz	12V
Innolux	V650DK1-KS1	65,0	V-By-One 8lane, 51 pins	3840x2160@60Hz	12V
AUO	P550QVN01.0	55,0	V-By-One 8lane, 51 pins	3840x2160@60Hz	12V
BOE	HV550QUS-300	55,0	V-By-One 16lane, 92 pins*	3840x2160@120Hz	12V
AUO	T650QVN01.2	65,0	V-By-One 16lane, 104 pins*	3840x2160@120Hz	12V
LG	LC840EQD-XXX	84,0	V-By-One 16lane, 97 pins*	3840x2160@120Hz	12V
LG	LC650EQK-XXX	65,0	V-By-One 16lane, 97 pins*	3840x2160@120Hz	12V
AUO	T550QVD02.0	55,0	V-By-One 16lane, 92 pins*	3840x2160@120Hz	12V
Innolux	V850DK1-KD1	85,0	V-By-One 16lane, 97 pins*	3840x2160@120Hz	12V

Note 1): For the 120Hz-TFT panels a Frame Rate Converter Board is necessary.
Note 2): Other panel voltages are available, see 7.1 Panel Power Supply Voltage Selection.

11 Reference KIT

11.1 KI-54-000 28.0" M280DGJ-L30/Prisma-4K

Ordering Code	Description	Comment
CH-01-050R1.1	M280DGJ-L30	
KA-25-013	Cable BL SmartLEDIII/A1024HA-06PN 250mm	
IN-54-009	SmartLED-IV / PDIM 4x150mA	
PA-37-000	Prisma-4K-00/M280DGJ-L30	
KA-40-085	Cable Prisma-4K-00/M280DGJ-L30 600mm	
KA-20-116	Conv.cable Prisma-4K/SmartLEDII-IV 500mm	
KA-30-904	Cable OSD Prisma-4K/IF398 450mm	
ZU-02-398	IF398-00-OSD-Board-Universal 4+1Button	
ZU-03-015	USBISP Board Rev:3.2 (Prisma-4K flasher)	For internal use only
KA-30-051	USB-Cable, Highspeed, type A/B m/m 1,8m	For internal use only
KA-40-081	Cable HDMI 4k Typ A male/male 2m	For internal use only

FORTEC
ELEKTRONIK AG

DATA DISPLAY GROUP

Our company network supports you worldwide with offices in Germany, Austria, Switzerland, Great Britain and the USA. For more information please contact:

Germany

Distec GmbH
Augsburger Str. 2b
82110 Germering
Germany

Phone: +49 89 89 43 63-0
Fax: +49 89 89 43 63-131
E-Mail: info@datadisplay-group.de
Internet: www.datadisplay-group.de

FORTEC Elektronik AG
Lechwiesenstr. 9
86899 Landsberg am Lech
Germany

Phone: +49 8191 911 72-0
Fax: +49 8191 217 70
E-Mail: sales@fortecag.de
Internet: www.fortecag.de

FORTEC Elektronik AG
Office West
Hohenstaufenring 55
50674 Köln
Germany

Phone: +49 221 272 273-0
Fax: +49 221 272 273-10
E-Mail: west@fortecag.de

Austria

FORTEC Elektronik AG
Office Vienna
Nuschinggasse 12
1230 Wien
Austria

Phone: +43 1 8673492-0
Fax: +43 1 8673492-26
E-Mail: office@fortec.at

Switzerland

ALTRAC AG
Bahnhofstraße 3
5436 Würenlos
Switzerland

Phone: +41 44 7446111
Telefax: +41 44 7446161
E-Mail: info@altrac.ch
Internet: www.altrac.ch

United Kingdom

Display Technology Ltd.
5 The Oaks Business Village
Revenge Road, Lordswood
Chatham, Kent, ME5 8LF
United Kingdom

Phone: +44 1634 67 27 55
Fax: +44 1634 67 27 54
E-Mail: info@displaytechnology.co.uk
Internet: www. displaytechnology.co.uk

USA

Apollo Display Technologies, Corp.
87 Raynor Avenue,
Unit 1Ronkonkoma,
NY 11779
United States of America

Phone: +1 631 580-43 60
Fax: +1 631 580-43 70
E-Mail: info@apollodisplays.com
Internet: www.apollodisplays.com