Toradex
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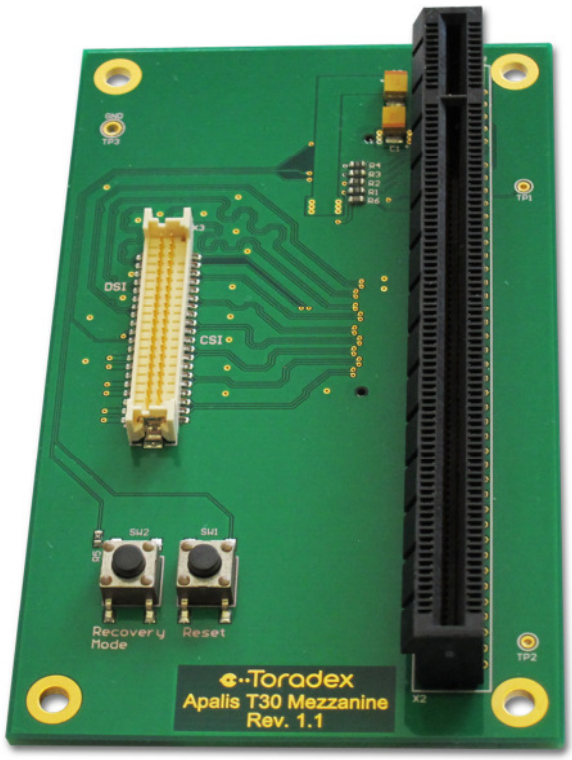
Apalis T30 Mezzanine

Preliminary Datasheet



Revision History

Date	Doc. Rev.	Board Version	Changes
20-Aug-13	Rev. 1.0	V1.1	Initial Release: Preliminary Version

Contents

1. Introduction

This board is an add-on board for the Apalis Evaluation Board which provides access to the type specific interfaces on the Apalis T30 module. These interfaces may differ between different Apalis modules. Different type specific mezzanine boards will be available for each Apalis module. Customers are free to develop their own type specific mezzanine board for prototyping and development purposes. Please refer to the datasheets for the individual Apalis module for more information. The Apalis T30 mezzanine board provides the following features:

- X16 (x4 mode) PCI Express slot
- CSI and DSI interfaces on one connector
- Push button for entering Apalis T30 module recovery mode
- Push button for Apalis module reset

1.1. Reference Documents

For detailed technical information about suitable computer modules, please refer to the documents listed below.

1.1.1 Apalis Computer Modules

An overview of the Apalis product family:

http://www.toradex.com/products/apalis-arm-computer-modules/apalis-t30

1.1.2 Toradex Developer Website

https://developer.toradex.com/

2. Apalis T30 Mezzanine Board Physical Drawings

2.1. Connector Locations

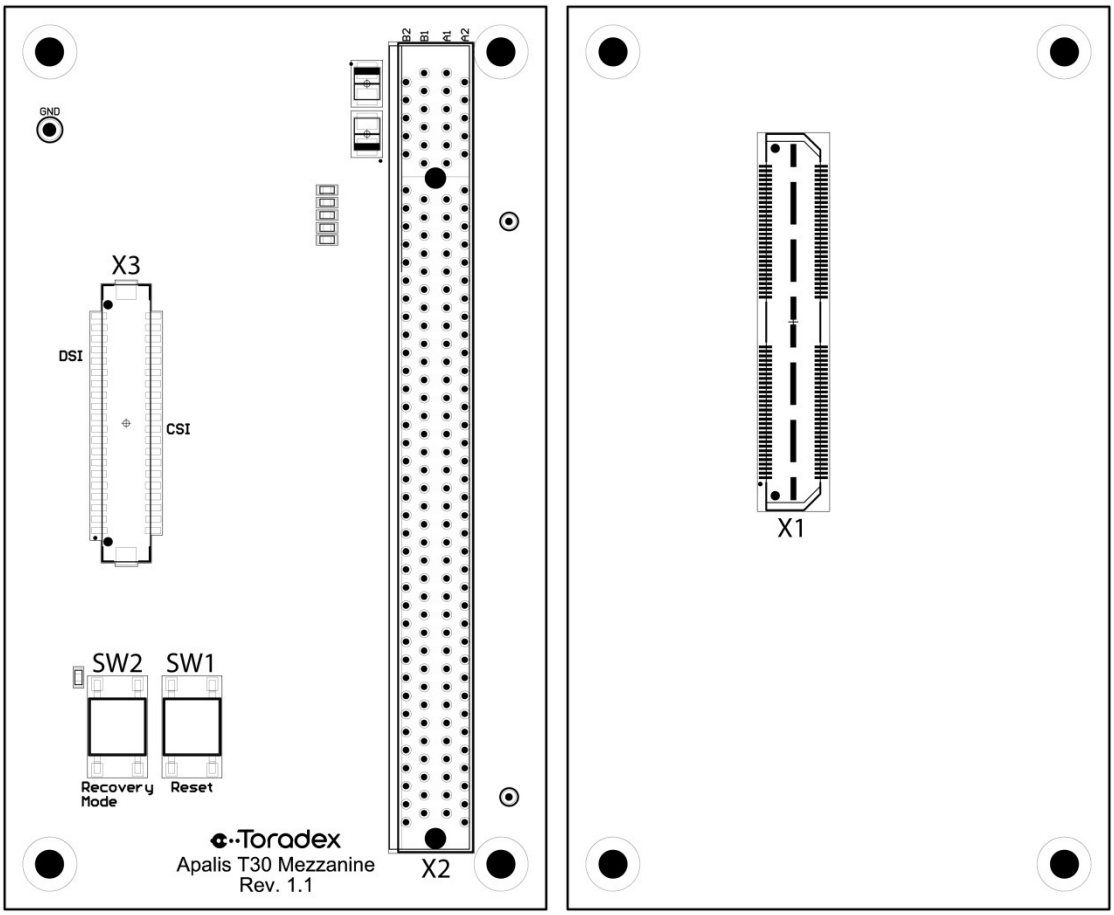


Fig.1 Apalis T30 Mezzanine Board connectors – Top and Bottom Side

Ref	Description
X1	Mezzanine Connector for the Apalis Evaluation Board
X2	X16 (x4 mode) PCI Express slot
X3	DSI and CSI connector
SW1	Push button for Apalis module reset
SW2	Push button for entering Apalis T30 module recovery mode

2.2. Mechanical Drawing

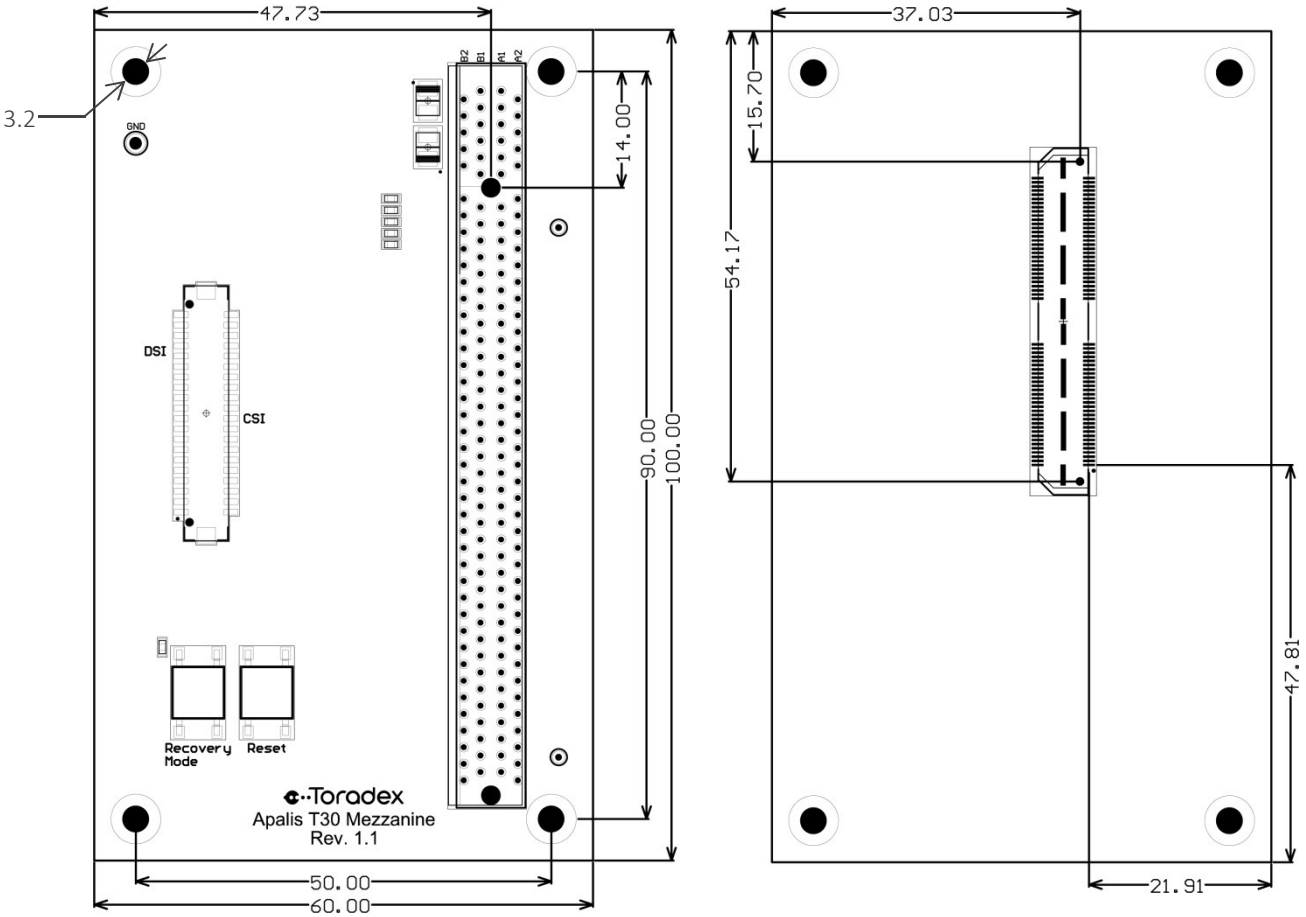


Fig.2 Apalis T30 Mezzanine Board dimensions in mm – Top and Bottom Side

3. Apalis T30 Mezzanine Board Connectors and Switches

3.1. Mezzanine Connector (X1)

Connector type: Samtec QTH-060-02-L-D-A

Pin	Signal Name	Description
1	GND	PWR
2	NC	Not connected
3	CSIA_CLK_P	
4	GND	PWR
5	CSIA_CLK_N	
6	NC	Not connected
7	CAM_MEZ_PIN26	IO
8	NC	Not connected
9	CSIA_D1_P	IO
10	NC	Not connected
11	CSIA_D1_N	IO
12	NC	Not connected
13	GND	PWR
14	NC	Not connected
15	CSIA_D2_P	IO
16	NC	Not connected
17	CSIA_D2_N	IO
18	NC	Not connected
19	GND	PWR
20	NC	Not connected
21	CSIB_D1_P	IO
22	GND	PWR
23	CSIB_D1_N	IO
24	CAM_MEZ_PIN24	I
25	GND	PWR
26	CAM_MEZ_PIN26	I
27	CSIB_D2_P	IO
28	CAM_MEZ_PIN28	I
29	CSIB_D2_N	IO
30	CAM_MEZ_PIN30	I
31	GND	PWR
32	GND	PWR
33	CAM_MEZ_PIN24	IO
34	CAM1_MCLK	
35	CSIB_CLK_P	IO
36	GND	PWR
37	CSIB_CLK_N	IO
38	I2C_CAM1_SCL	CAM DDC CLK

Pin	Signal Name	Description
39	GND	PWR
40	GND	PWR
41	DSIA_CLK_P	IO
42	I2C_CAM1_SDA	CAM DDC DATA
43	DSIA_CLK_N	IO
44	5V_SW	PWR
45	GND	PWR
46	5V_SW	PWR
47	CAM_MEZ_PIN28	IO
48	5V_SW	PWR
49	DSIA_D1_P	IO
50	5V_SW	PWR
51	DSIA_D1_N	IO
52	5V_SW	PWR
53	GND	PWR
54	NC	Not connected
55	DSIA_D2_P	IO
56	NC	Not connected
57	DSIA_D2_N	IO
58	NC	Not connected
59	GND	PWR
60	NC	Not connected
61	PCIE_L3_TX_P	IO
62	NC	Not connected
63	PCIE_L3_TX_N	IO
64	NC	Not connected
65	GND	PWR
66	NC	Not connected
67	PCIE_L3_RX_P	IO
68	NC	Not connected
69	PCIE_L3_RX_N	IO
70	NC	Not connected
71	GND	PWR
72	3.3V_SW	PWR
73	CAM_MEZ_PIN30	IO
74	3.3V_SW	PWR
75	PCIE_L2_TX_P	IO
76	3.3V_SW	PWR
77	PCIE_L2_TX_N	IO
78	3.3V_SW	PWR
79	GND	PWR
80	NC	Not connected
81	PCIE_L2_RX_P	IO

Pin	Signal Name	Description
82	12V_SW_UNREG_F	PWR
83	PCIE_L2_RX_N	IO
84	12V_SW_UNREG_F	PWR
85	GND	PWR
86	12V_SW_UNREG_F	PWR
87	TP1	IO
88	GND	PWR
89	PCIE_L1_TX_P	IO
90	IDC1_SCL	I2C CLK
91	PCIE_L1_TX_N	IO
92	I2C1_SDA	IO
93	GND	PWR
94	NC	Not connected
95	PCIE_L1_RX_P	IO
96	NC	Not connected
97	PCIE_L1_RX_N	IO
98	WAKE1_MICO#	
99	GND	PWR
100	NC	Not connected
101	PCIE_L0_TX_P	IO
102	RESET_MOCI#	
103	PCIE_L0_TX_N	IO
104	RESET_MICO#	
105	GND	PWR
106	NC	Not connected
107	PCIE_L0_RX_P	IO
108	NC	Not connected
109	PCIE_L0_RX_N	IO
110	NC	Not connected
111	GND	PWR
112	NC	Not connected
113	RECOVERY_MODE#	IO
114	NC	Not connected
115	PCIE_CLK_P	IO
116	NC	Not connected
117	PCIE_CLK_N	IO
118	NC	Not connected
119	GND	PWR
120	NC	Not connected
121	GND	PWR

3.2. X16 (x4 mode) PCI Express slot (X2)

Connector type: Sullins NWE18DHHN-T931

Pin No.	Signal Name	IO Type	Voltage	Pullup/Pulldown
A1	GND	PWR		
A2	12V_SW_UNREG_F	PWR	+12V	
A3	12V_SW_UNREG_F	PWR	+12V	
A4	GND	PWR		
A5	NC	Not connected		
A6	NC	Not connected		
A7	NC	Not connected		
A8	NC	Not connected		
A9	3.3V_SW	PWR	+3V3	
A10	3.3V_SW	PWR	+3V3	
A11	PCIE1_RESET#		+3V3	
A12	GND	PWR		
A13	PCIE_CLK_P		+3V3	
A14	PCIE_CLK_N		+3V3	
A15	GND	PWR		
A16	PCIE_L0_RX_N	I	+3V3	
A17	PCIE_L0_RX_P	I	+3V3	
A18	GND	PWR		
A19	NC	Not connected		
A20	GND	PWR		
A21	PCIE_L1_RX_P			
A22	PCIE_L1_RX_N			
A23	GND	PWR		
A24	GND	PWR		
A25	PCIE_L2_RX_P			
A26	PCIE_L2_RX_N			
A27	GND	PWR		
A28	GND	PWR		
A29	PCIE_L3_RX_P			
A30	PCIE_L3_RX_N			
A31	GND	PWR		
A32	NC	Not connected		
A33	NC	Not connected		
A34	GND	PWR		
A35	NC	Not connected		
A36	NC	Not connected		
A37	GND	PWR		
A38	GND	PWR		
A39	NC	Not connected		
A40	NC	Not connected		
A41	GND	PWR		

Pin No.	Signal Name	IO Type	Voltage	Pullup/Pulldown
A42	GND	PWR		
A43	NC	Not connected		
A44	NC	Not connected		
A45	GND	PWR		
A46	GND	PWR		
A47	NC	Not connected		
A48	NC	Not connected		
A49	GND	PWR		
A50	NC	Not connected		
A51	GND	PWR		
A52	NC	Not connected		
A53	NC	Not connected		
A54	GND	PWR		
A55	GND	PWR		
A56	NC	Not connected		
A57	NC	Not connected		
A58	GND	PWR		
A59	GND	PWR		
A60	NC	Not connected		
A61	NC	Not connected		
A62	GND	PWR		
A63	GND	PWR		
A64	NC	Not connected		
A65	NC	Not connected		
A66	GND	PWR		
A67	GND	PWR		
A68	NC	Not connected		
A69	NC	Not connected		
A70	GND	PWR		
A71	GND	PWR		
A72	NC	Not connected		
A73	NC	Not connected		
A74	GND	PWR		
A75	GND	PWR		
A76	NC	Not connected		
A77	NC	Not connected		
A78	GND	PWR		
A79	GND	PWR		
A80	NC	Not connected		
A81	NC	Not connected		
A82	GND	PWR		
B1	12V_SW_UNREG_F	PWR	+12V	
B2	12V_SW_UNREG_F	PWR	+12V	

Pin No.	Signal Name	IO Type	Voltage	Pullup/Pulldown
B3	NC	Not connected		
B4	GND	PWR		
B5	PCIE_SMCLK		+3V3	
B6	PCIE1_SMBDAT		+3V3	
B7	GND	PWR		
B8	3.3V_SW	PWR	+3V3	
B9	NC	Not connected		
B10	3.3V_SW	PWR	+3V3	
B11	PCIE_WAKE#			
B12	NC	Not connected		
B13	GND	PWR		
B14	PCIE_L0_TX_N	O	+3V3	
B15	PCIE_L0_TX_P	O	+3V3	
B16	GND	PWR		
B17	PCIE_PRSNT2#	IO	+3V3	
B18	GND	PWR		
B19	PCIE_L1_TX_N			
B20	PCIE_L1_TX_P			
B21	GND	PWR		
B22	GND	PWR		
B23	PCIE_L2_TX_N			
B24	PCIE_L2_TX_P			
B25	GND	PWR		
B26	GND	PWR		
B27	PCIE_L3_TX_N			
B28	PCIE_L3_TX_P			
B29	GND	PWR		
B30	NC	Not connected		
B31	PCIE_PRSNT2#			
B32	GND	PWR		
B33	NC	Not connected		
B34	NC	Not connected		
B35	GND	PWR		
B36	GND	PWR		
B37	NC	Not connected		
B38	NC	Not connected		
B39	GND	PWR		
B40	GND	PWR		
B41	NC	Not connected		
B42	NC	Not connected		
B43	GND	PWR		
B44	GND	PWR		
B45	NC	Not connected		

Pin No.	Signal Name	IO Type	Voltage	Pullup/Pulldown
B46	NC	Not connected		
B47	GND	PWR		
B48	PCIE_PRSNT2#			
B49	GND	PWR		
B50	NC	Not connected		
B51	NC	Not connected		
B52	GND	PWR		
B53	GND	PWR		
B54	NC	Not connected		
B55	NC	Not connected		
B56	GND	PWR		
B57	GND	PWR		
B58	NC	Not connected		
B59	NC	Not connected		
B60	GND	PWR		
B61	GND	PWR		
B62	NC	Not connected		
B63	NC	Not connected		
B64	GND	PWR		
B65	GND	PWR		
B66	NC	Not connected		
B67	NC	Not connected		
B68	GND	PWR		
B69	GND	PWR		
B70	NC	Not connected		
B71	NC	Not connected		
B72	GND	PWR		
B73	GND	PWR		
B74	NC	Not connected		
B75	NC	Not connected		
B76	GND	PWR		
B77	GND	PWR		
B78	NC	Not connected		
B79	NC	Not connected		
B80	GND	PWR		
B81	PCIE_PRSNT2#			
B82	NC	Not connected		

3.3. DSI and CSI Connector (X3)

Connector type: Hirose DF13A-40DP-1.25V(55)

Pin	Signal Name	Description
1	3.3V_SW	PWR
2	GND	PWR
3	3.3V_SW	PWR
4	CSIA_CLK_P	CSI A Interface Positive Clock
5	GND	PWR
6	CSIA_CLK_N	CSI A Interface Negative Clock
7	3.3V_SW	PWR
8	GND	PWR
9	5V_SW	PWR
10	CSIA_D1_P	CSI A Interface Positive Input Number 1
11	GND	PWR
12	CSIA_D1_N	CSI A Interface Negative Input Number 1
13	5V_SW	PWR
14	GND	PWR
15	5V_SW	PWR
16	CSIA_D2_P	CSI A Interface Positive Input Number 2
17	GND	PWR
18	CSIA_D2_N	CSI A Interface Negative Input Number 2
19	RESET_MOCI#	Reset Output
20	GND	PWR
21	CAM1_MCLK	Camera Interface Master Clock
22	CSIB_D1_P	CSI B Interface Positive Input Number 1
23	GND	PWR
24	CSIB_D1_N	CSI B Interface Negative Input Number 1
25	DSIA_D2_N	DSI A Interface Negative Output Number 2
26	GND	PWR
27	DSIA_D2_P	DSI A Interface Positive Output Number 2
28	CSIB_D2_P	CSI B Interface Positive Input Number 2
29	GND	PWR
30	CSIB_D2_N	CSI B Interface Negative Input Number 2
31	DSIA_D1_N	DSI A Interface Negative Output Number 1
32	GND	PWR
33	DSIA_D1_P	DSI A Interface Positive Output Number 1
34	CSIB_CLK_P	CSI B Interface Positive Clock
35	GND	PWR
36	CSIB_CLK_N	CSI B Interface Negative Clock
37	DSIA_CLK_N	DSI A Interface Negative Clock
38	I2C_CAM1_SCL	CAM 1 DDC Clock
39	DSIA_CLK_P	DSI A Interface Positive Clock
40	I2C_CAM1_SDA	CAM 1 DDC Data

3.4. Reset Button (SW1)

This button has the same function as the SW10 of the Apalis Evaluation Board: by pressing, the Apalis module will be reset.

3.5. Recovery Mode Button (SW2)

By pressing this button, it is possible to enter the Apalis T30 module recovery mode. For further information, please visit the Toradex developer website.

4. RoHS Compliance

The Apalis T30 Mezzanine Board complies with the European Union's Directive 2002/95/EC: "Restrictions of Hazardous Substances".