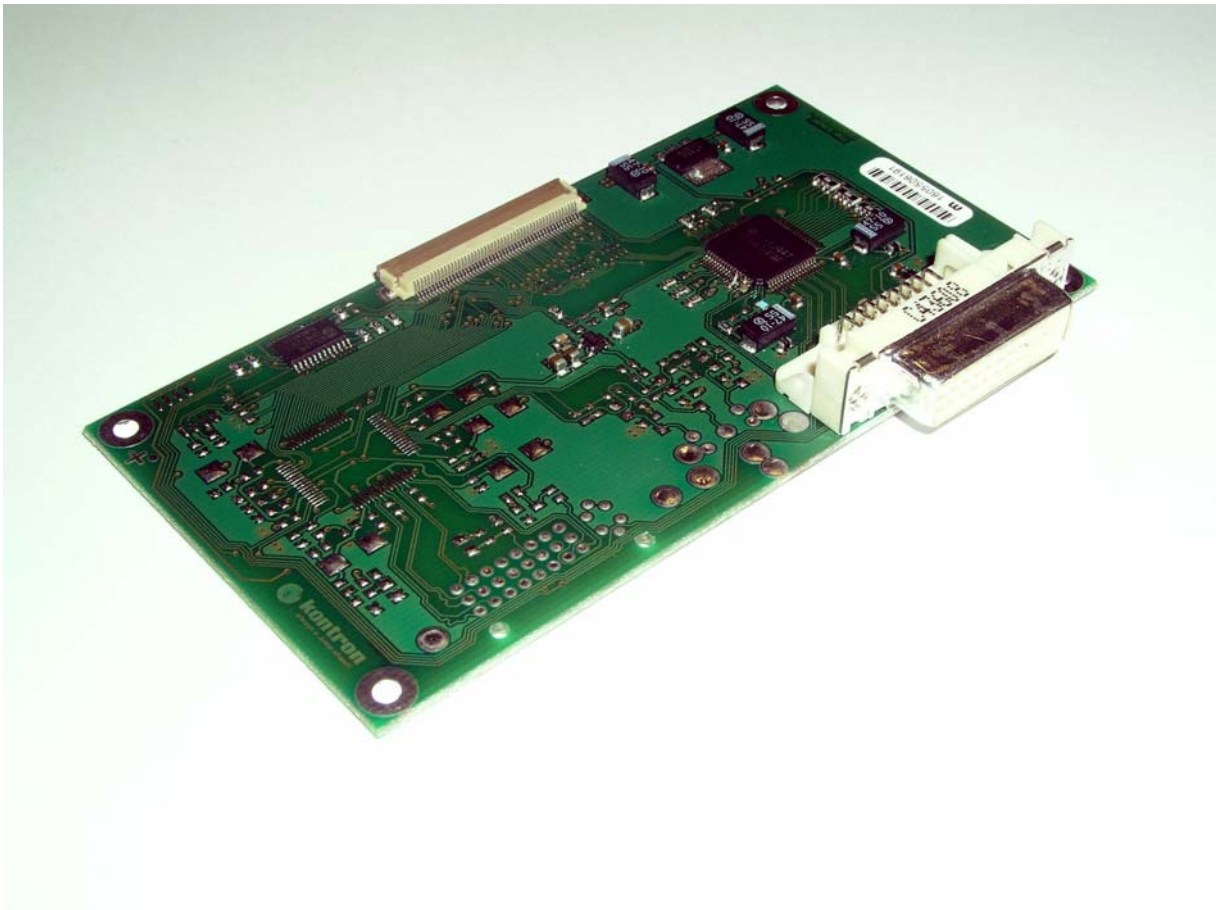
Kontron User's Guide



ETX Feature Connector Adaptor

Document Revision 1.12

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1 User Information

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Before contacting Kontron Embedded Modules GmbH technical support, please consult our Web site at http://www.kontron-emea.com/emd for the latest product documentation, utilities, and drivers. If the information does not help solve the problem, contact us by telephone or email.

Asia	Europe	North/South America
Kontron Asia Inc.	Kontron Embedded Modules GmbH	Kontron America
4F, No.415, Ti-Ding Blvd., NeiHu District, Taipei 114, Taiwan	Brunnwiesenstr. 16 94469 Deggendorf – Germany	14118 Stowe Drive Poway, CA 92064-7147
Tel: +886 2 2799 2789	Tel: +49 (0) 991-37024-0	Tel: +1 (888) 294 4558
Fax: + 886 2 2799 7399	Fax: +49 (0) 991-37024-333	Fax: +1 (858) 677 0898
mailto:sales@kontron.com.tw	mailto:sales-kem@kontron.com	mailto:sales@us-kontron.com

2 Introductions

2.1.1 ADA-ETX FC3

The ADA-ETX FC3 is a small adaptor board to convert the signals from DVO to DVI. The DVO signals are available on Kontron boards which has implemented the “feature connector”´.

The ADA-ETX FC3 is supported by the following Board:

- ETX PM (with Intel 82855GME Chipset)

3 Specification

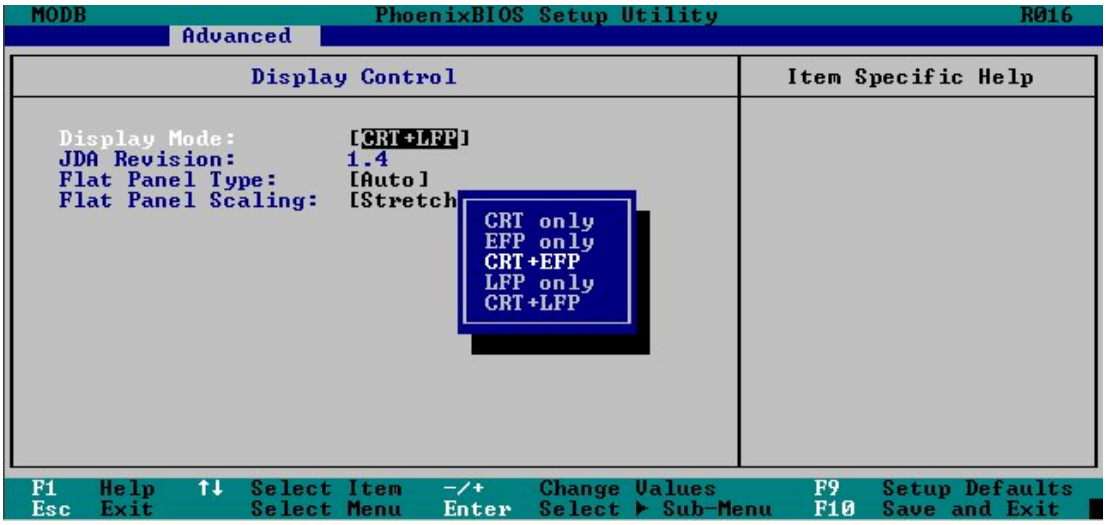
3.1 ADA-ETX FC3 with Texas Instruments TFP410

- The ADA-ETX FC3 supports DVI resolutions from VGA to SXGA@60Hz
- Programmable by Using the I2C Serial Interface

3.1.1 Configuration

To activate the ADA-ETX FC3 please enable in the Phoenix Bios Setup:

-> Advanced -> Display Control : EFP Only or CRT+EFP

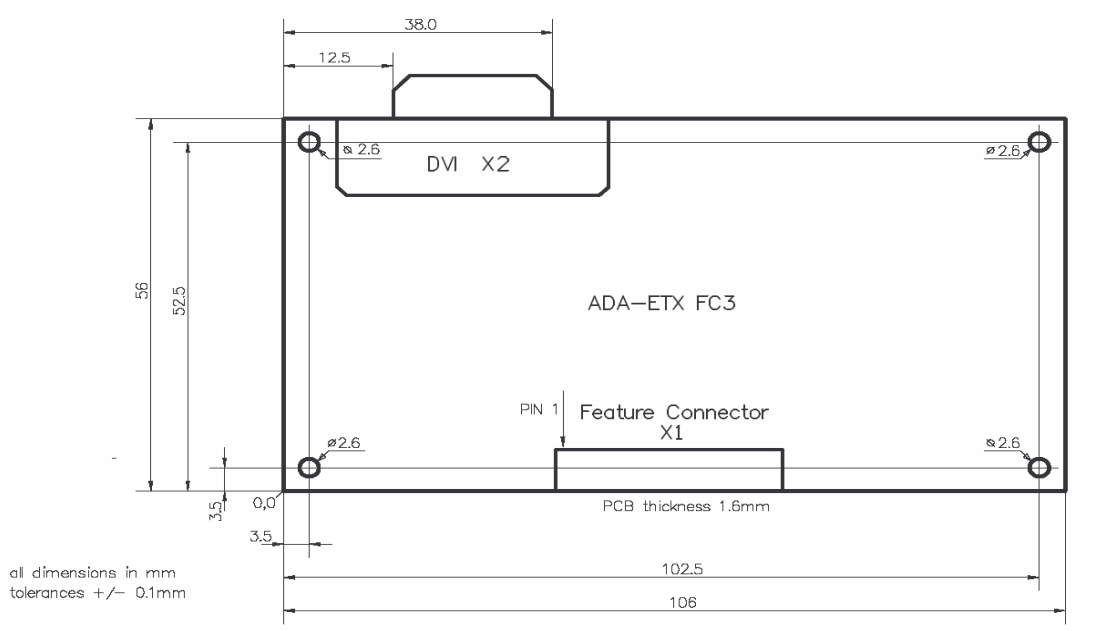


Note: The selection "CRT + EFP" is only visible when the ADA-ETX®-FC3 is connectoed to the ETX®-modul.

3.2 Mechanical Specifications

3.2.1 Dimensions

- 63.0 mm x 106.0 mm (2.2" x 4.17")
- Height (total) approx. 15 mm(0.6")



3.3 Electrical Specifications

3.3.1 Supply Voltage

- 5V DC +/- 5%
- 5V rise time from <10% to nominal within 0.1 ms to 20 ms

3.3.2 Supply Voltage Ripple

- Maximum 100 mV peak to peak 0 – 20 MHz

3.3.3 Supply Current

- Power-consumption tests were executed during different applications conducted.

3.4 Environmental Specifications

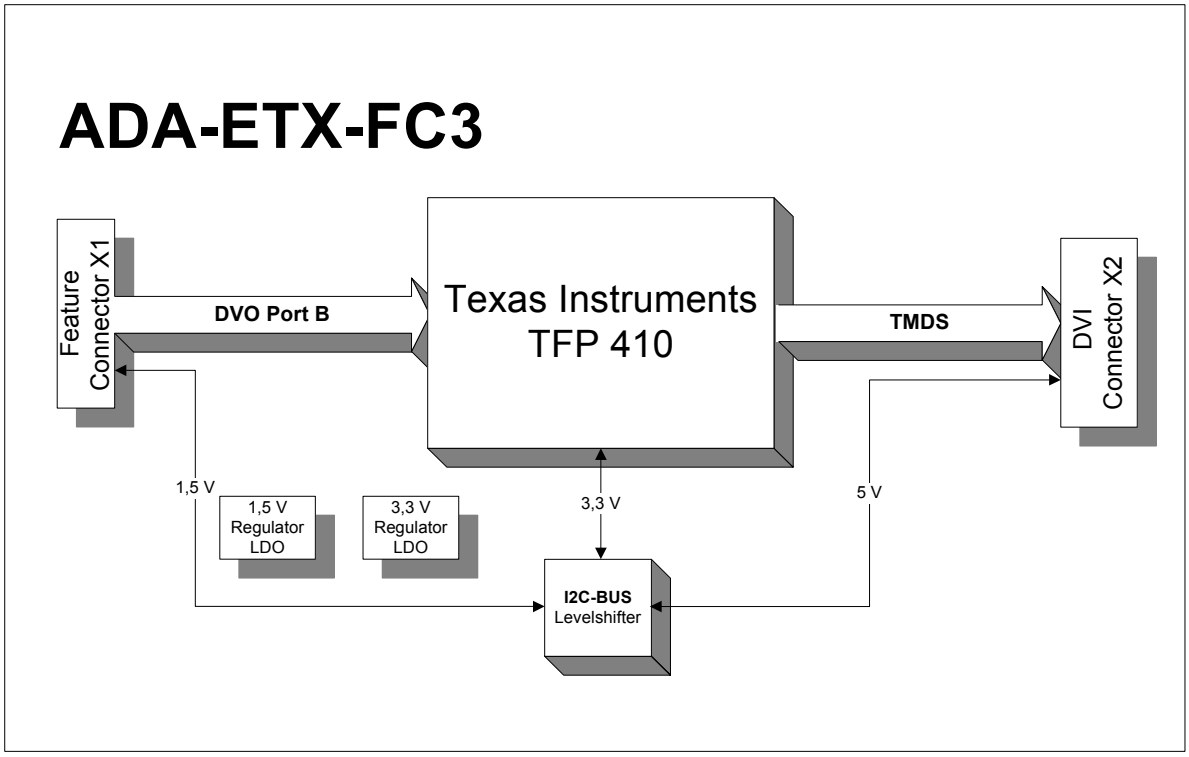
3.4.1 Temperature

- Operating: Ambient temperature: 0 to +60 °C
- Non-operating: -40 to +85 °C

3.4.2 Humidity

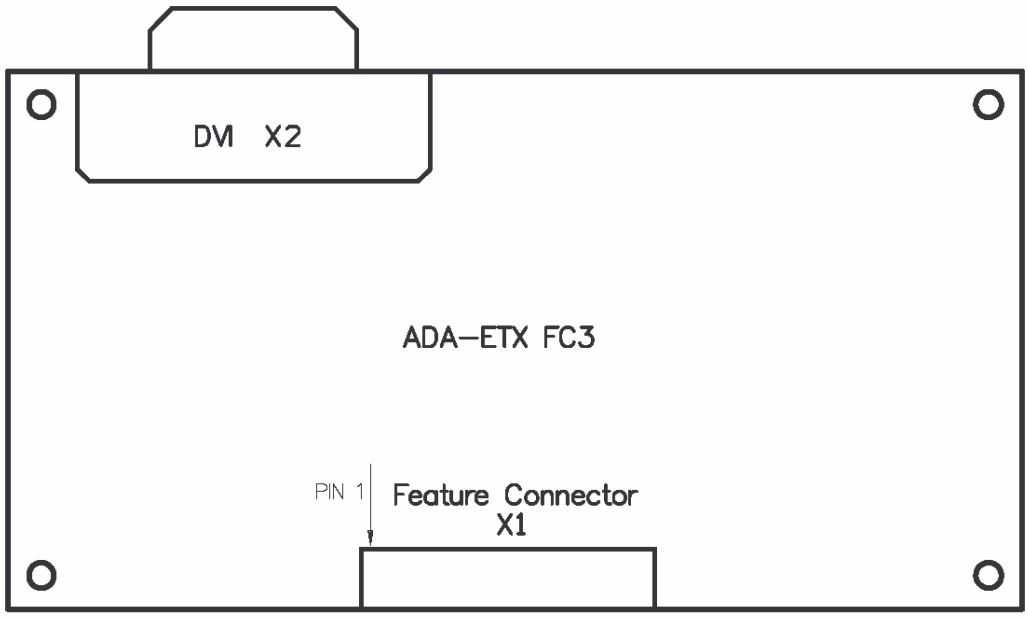
- Operating: 10% to 90% (non condensing)
- Non operating: 5% to 95% (non condensing)

4 Appendix a: block diagram



5 Appendix B: Connector Pinnout

5.1 Connector Locations

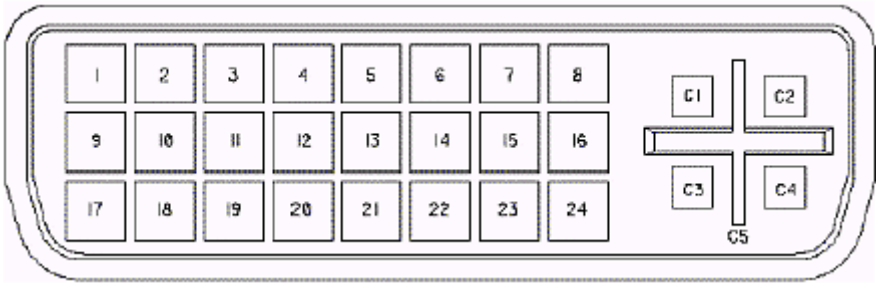


5.2 Feature Connector X1 Pinout ADA-ETX FC3

Pin	Pin on ETX-PM	Description	
1	DVOC_D0	DVOC Data D0	not used
2	DVOB_D0	DVOB Data D0	
3	DVOC_D1	DVOC Data D1	not used
4	VCC	Supply +5V	
5	DVOB_D1	DVOB Data D1	
6	DVOC_D2	DVOC Data D2	not used
7	DVOB_D2	DVOB Data D2	
8	VCC	Supply +5V	
9	DVOC_D3	DVOC Data D3	not used
10	DVOB_D3	DVOB Data D3	
11	DVOC_D4	DVOC Data D4	not used
12	GND	Ground	
13	DVOB_D4	DVOB Data D4	
14	DVOC_D5	DVOC Data D5	not used
15	DVOB_D5	DVOB Data D5	
16	GND	Ground	
17	DVOC_D6	DVOC Data D6	not used
18	DVOB_D6	DVOB Data D6	
19	DVOC_D7	DVOC Data D7	not used
20	GND	Ground	
21	DVOB_D7	DVOB Data D7	
22	DVOC_D8	DVOC Data D8	not used

23	DVOB_D8	DVOB Data D8	
24	GND	Ground	
25	DVOC_D9	DVOC Data D9	not used
26	DVOB_D9	DVOB Data D9	
27	DVOC_D10	DVOC Data D10	not used
28	GND	Ground	
29	DVOB_D10	DVOB Data D10	
30	DVOC_D11	DVOC Data D11	not used
31	DVOB_D11	DVOB Data D11	
32	GND	Ground	
33	DVOB_CLK	Differential DVO Clock Output	
34	DVOB_CLK#	Differential DVO Clock Output	
35	GND	Ground	
36	DVOC_CLK	Differential DVO Clock Output	not used
37	DVOC_CLK#	Differential DVO Clock Output	not used
38	GND	Ground	
39	DVOB_VSYNC	VSYNC signal for the DVOB interface	
40	DVOB_HSYNC	HSYNC signal for the DVOB interface	
41	DVOB_BLANK#	Flicker Blank or Border Period Indication for DVOB	
42	NC	Not supported now.	
43	DVOC_VSYNC	VSYNC signal for the DVOC interface	not used
44	DVOC_HSYNC	HSYNC signal for the DVOC interface	not used
45	DVOC_BLANK#	Flicker Blank or Border Period Indication for DVOC	not used
46	DVOC_FLDSTL	TV Field and Flat Panel Stall Signal for DVOC	not used
47	NC	Not supported now.	
48	MI2CDATA	DVO I2C Clock	
49	MI2CCLK	DVO I2C Data	
50	GVREF	Input buffer VREF	

5.3 DVI Connector X2 Pinout on ADA-ETX FC3



Pin	Name	Pin	Name
1	TMDS Data2-	13	Not connected
2	TMDS Data2+	14	+5 V Power
3	GND	15	GND
4	Not connected	16	Hot Plug Detect
5	Not connected	17	TMDS Data0-
6	DDC Clock [SCL]	18	TMDSData0+
7	DDC Data [SDA]	19	GND
8	Not connected	20	Not connected
9	TMDS Data1-	21	Not connected
10	TMDS Data1+	22	GND
11	GND	23	TMDS Clock +
12	Not connected	24	TMDS Clock -
C1	Not connected		
C2	Not connected		
C3	Not connected		
C4	Not connected		
C5	GND		

Legend:

DDC = Display Data Channel

T.M.D.S. = Transition Minimized Differential Signal

Please refer to following link for detailed information about DVI specification: http://www.ddwg.org

Note: On VCC pins: To protect the external powerlines of peripheral devices the customer has to take care about:
- that the wires have the right diameter to withstand the maximum available current
- that the enclosure of the peripheral device fulfils the fire protecting requirements of IEC/EN 60950.

6 Appendix C: DOCUMENT-REVISION HISTORY

Revision	Date	Edited by	Changes
0.1	02.11.04	HMA	Created preliminary manual.
0.2	03.07.05	TJO	Added new drawings
1.0	24.07.05	TJO	First public release
1.1	05.12.05	TJO	Layout reworked
1.2	30.07.07	GUL	Updated to current Kontron layout