kontron

» Kontron User's Guide «

MSMST Media Board - VGA

Document Revision 102

» Table of Contents «

1 User Information

1.1 About this Document

This document provides information about products from Kontron AG and/or its subsidiaries. No warranty of suitability, purpose, or fitness is implied. While every attempt has been made to ensure that the information in this document is accurate, the information contained within is supplied "as-is" and is subject to change without notice.

1.2 Copyright Notice

1.3 Trademarks

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The following lists the trademarks of components used in this product.

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- Microsoft is a registered trademark of Microsoft Corp.
- Intel is a registered trademark of Intel Corp.

All other products and trademarks mentioned in this manual are trademarks of their respective owners. For the circuits, descriptions and tables indicated, Kontron assumes no responsibility as far as patents or other rights of third parties are concerned.

1.4 Standards

Kontron AG is certified to ISO 9000 standards.

1.5 Warranty

This Kontron AG product is warranted against defects in material and workmanship for the warranty period from the date of shipment. During the warranty period, Kontron AG will, at its discretion, decide to repair or replace defective products.

Within the warranty period, the repair of products is free of charge as long as warranty conditions are observed.

The warranty does not apply to defects resulting from improper or inadequate maintenance or handling by the buyer, unauthorized modification or misuse, operation outside of the product's environmental specifications or improper installation or maintenance.

Kontron AG will not be responsible for any defects or damages to other products not supplied by Kontron AG that are caused by a faulty Kontron AG product.

1.6 Technical Support

Technicians and engineers from Kontron AG and/or its subsidiaries are available for technical support. We are committed to making our products easy to use and will help you use our products in your systems.

For technical support, please consult our technical support department:

Web: http://support.kcc-ag.ch
Tel.: +41 (0) 32 681-5848
Fax: +41 (0) 32 681-5801

For the latest product documentation, utilities, drivers, additional tools and software please consult our website:

Web: http://kontron.com

1.7 Environmental Protection Statement

This product has been manufactured to satisfy environmental protection requirements wherever possible. Many of the components used (structural parts, printed circuit boards, connectors, batteries, etc.) are capable of being recycled. Final disposal of this product after its service life must be accomplished in accordance with applicable country, state, or local laws or regulations. All components within this product fulfill the requirements of the RoHS (Restriction of Hazardous Substances Directive). The product is soldered with a lead free process.

1.8 RoHS Commitment

Kontron Compact Computers AG (Switzerland) is committed to developing and producing environmentally friendly products in accordance to the Restriction of Hazardous Substances (RoHS) Directive (2002/95/EC) and the Waste Electrical and Electronic Equipment (WEEE) Directive (2002/96/EC) established by the European Union. The RoHS directive was adopted in February 2003 by the European Union and came into effect on July 1, 2006. It is not a law but a directive, which restricts the use of six hazardous materials in the manufacturing of various types of electronic and electrical equipment. It is closely linked with the Waste Electrical and Electronic Equipment Directive (WEEE) 2002/96/EC, which has set targets for the collection, recycling and recovery of electrical goods, and is part of a legislative initiative to solve the problem of huge amounts of toxic e-waste.

Each European Union member state is adopting its own enforcement and implementation policies using the Directive as a guide. Therefore, there could be as many different versions of the law as there are Member States in the EU. Additionally, non-EU countries like China, Japan, or states in the U.S. such as California, may have their own regulations for green products, which are similar, but not identical, to the RoHS directive.

RoHS is often referred to as the "lead-free" directive, but it restricts the use of the following substances:

- Lead
- Mercury
- Cadmium
- Chromium VI
- PBB and PBDE

The maximum allowable concentration of any of the above mentioned substances is 0.1% (except for cadmium, which is limited to 0.01%) by weight of homogeneous material. This means that the limits do not apply to the weight of the finished product, or even to a component, but to any single substance that could (theoretically) be separated mechanically.

1.8.1 RoHS Compatible Product Design

All standard products from Kontron Compact Computers (KCC) comply with RoHS legislation.

Since July 1, 2006, there has been a strict adherence to the use of RoHS compliant electronic and mechanical components during the design-in phase of all KCC standard products.

1.8.2 RoHS Compliant Production Process

KCC selects external suppliers that are capable of producing RoHS compliant devices verified by:

- A confirmation from the supplier indicating that their production processes and resulting devices are RoHS compliant.
- If there is any doubt of the RoHS compliancy, the concentration of the previously mentioned substances in a produced device will be measured. These measurements are carried out by an accredited laboratory.

1.8.3 WEEE Application

The WEEE directive is closely related to the RoHS directive and applies to the following devices:

- Large and small household appliances
- IT equipment
- Telecommunications equipment (although infrastructure equipment is exempt in some countries)
- Consumer equipment
- Lighting equipment – including light bulbs
- Electronic and electrical tools
- Toys, leisure and sports equipment
- Automatic dispensers

It does not apply to fixed industrial plants and tools. Compliance is the responsibility of the company that brings the product to market, as defined in the Directive. Components and sub-assemblies are not subject to product compliance. In other words, since Kontron Compact Computers AG does not deliver ready-made products to end users the WEEE directive is not applicable for KCC. Users are nevertheless encouraged to properly recycle all electronic products that have reached the end of their life cycle.

1.9 Swiss Quality

- 100% Made in Switzerland
- This product was not manufactured by employees earning piecework wages
- This product was manufactured in humane work conditions
- All employees who worked on this product are paid customary Swiss market wages and are insured
- ISO 9000:2001 (quality management system)

1.10 The Swiss Association for Quality and Management Systems

The Swiss Association for Quality and Management Systems (SQS) provides certification and assessment services for all types of industries and services. SQS certificates are accepted worldwide thanks to accreditation by the Swiss Accreditation Service (SAS), active membership in the International Certification Network, IQNet, and co-operation contracts/agreements with accredited partners.

www.sqs.ch

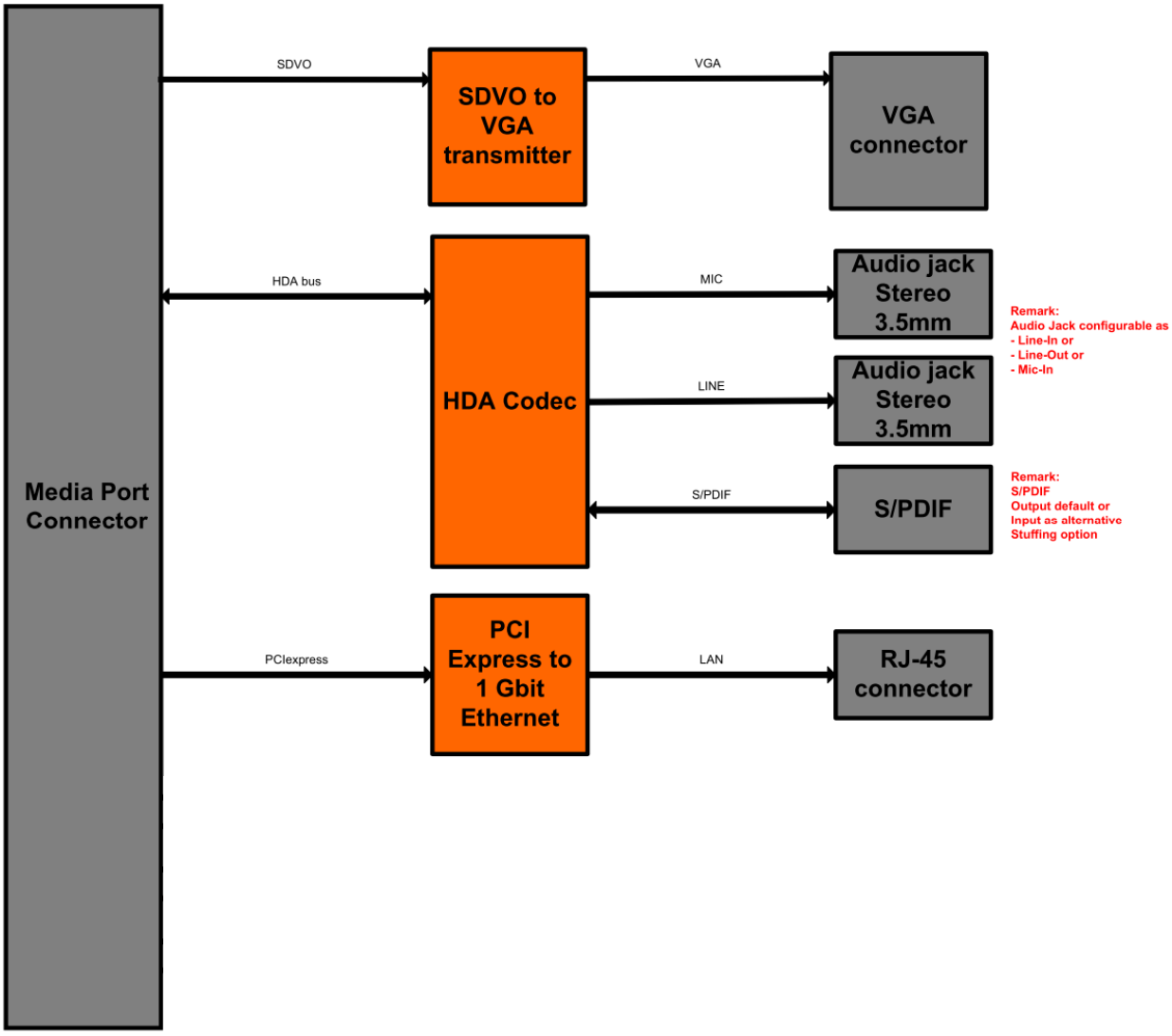
The SQS Certificate ISO 9001:2000 has been issued to Kontron Compact Computers AG in the field of development, manufacturing and sales of embedded computer boards, embedded computer modules and computer systems. The certification is valid for three years at which time an audit is performed for recertification.

2 Introduction

2.1 Modules Available

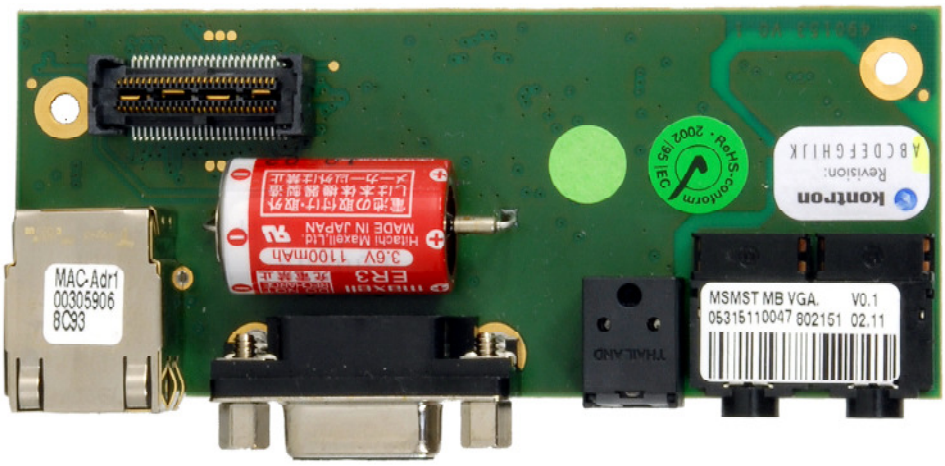
Part Number	Article
802151	MSMST Media Board VGA

2.2 Block Diagram

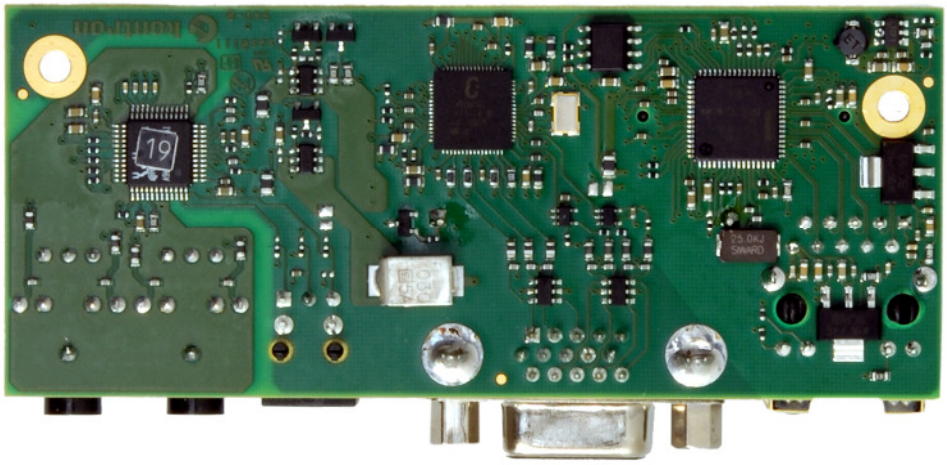


2.3 Product Photos

2.3.1 Top



2.3.2 Bottom



3 Specifications

Note:	All information is subject to change without notice.

3.1 Functional Specifications

Display Interface

» VGA: Maximum resolution up to 1920x1200 @ 50Hz

Ethernet Interface

» LAN: Intel® 82574L Gigabit Ethernet Controller

Audio Interfaces

» Audio Out: Realtek ALC882 High Definition Audio

» Audio In: Realtek ALC882 High Definition Audio

» Audio Digital: Realtek ALC882 High Definition Audio

3.2 Mechanical Specifications

» 40.0mm x 95.89mm

» Height approximately 14.5mm

3.3 Electrical Specifications

3.3.1 Supply Voltage

» Supplied through the MSMST board.

3.3.2 Supply Current (Windows XP SP3)

The tested boards were mounted on a carrier board; a mouse and a keyboard were connected. The power-consumption tests were executed under the Bios Setup.

MSMST-13G-1GB

Module	[A] 5V	[W]
VGA	0.3	1.5

3.4 Environmental Specifications

Temperature

- Maximum operating temperature: -40 to +85°C
- Storage temperature: -40 to +85°C

Attention: The maximum operating temperature should never be exceeded in any case!

Humidity

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

3.5 External Real-Time Clock Battery

- Nominal voltage: 3.6V
- Capacity: 1100mAh

Lithium battery precautions

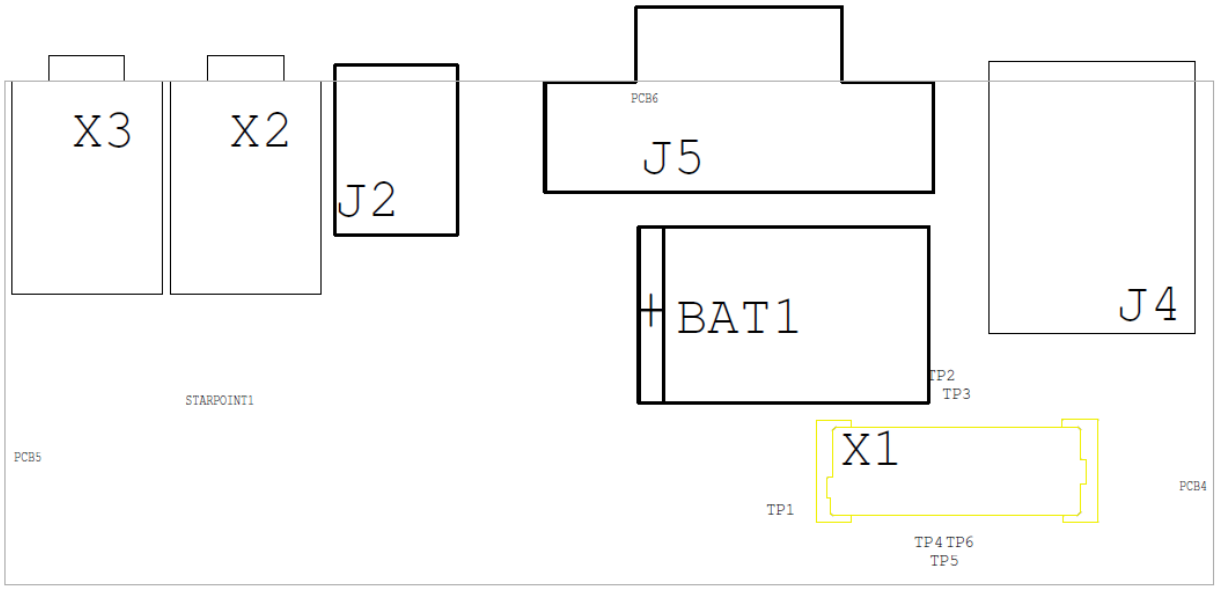
CAUTION! Danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.	VORSICHT! Explosionsgefahr bei unsachgemässem Austausch der Batterie. Ersatz nur durch denselben oder einem vom Hersteller empfohlenen gleichwertigen Typ. Entsorgung gebrauchter Batterien nach Angaben des Herstellers.
ATTENTION! Risque d'explosion avec l'échange inadéquat de la batterie. Remplacement seulement par le même ou un type équivalent recommandé par le producteur. L'évacuation des batteries usagées conformément à des indications du fabricant.	PRECAUCION! Peligro de explosión si la batería se sustituye incorrectamente. Sustituya solamente por el mismo o tipo equivalente recomendado por el fabricante. Disponga las baterías usadas según las instrucciones del fabricante.
ADVARSEL! Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering. Udskiftning må kun ske med batteri af samme fabrikat og type. Levér det brugte batteri tilbage til leverandøren.	ADVARSEL! Eksplosjonsfare ved feilaktig skifte av batteri. Benytt samme batteritype eller en tilsvarende type anbefalt av apparatfabrikanten. Brukte batterier kasseres i henhold til fabrikantens instruksjoner.
VARNING! Explosionsfara vid felaktigt batteribyte. Använd samma batterityp eller en ekvivalent typ som rekommenderas av apparattillverkaren. Kassera använt batteri enligt fabrikantens instruktion.	VAROITUS! Paristo voi räjähtää, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan lalteval- mistajan suosittelemaan tyyppiln. Hävitä käytetty paristo valmistajan ohjeiden mukaisesti.

4 Connectors & Jumpers

4.1 Connectors

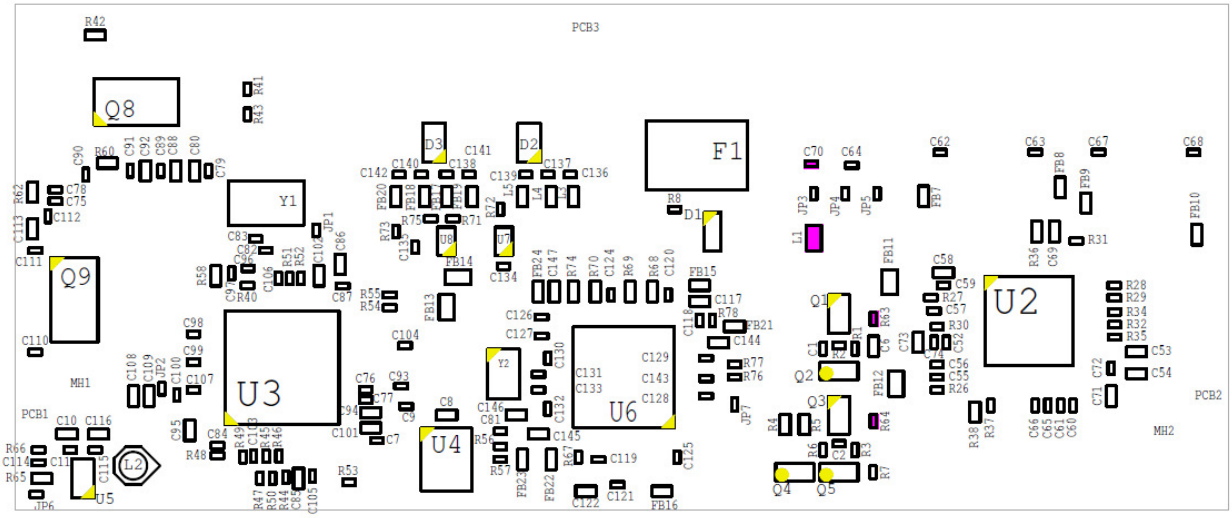
Connector	Structure	Pins	Remarks
X1	Media Port	2x26	Board to board connector
X2	Audio Output		3.5mm stereo jack
X3	Audio Input		3.5mm stereo jack
J2	Digital Audio		Optical S/PDIF
J4	Gigabit Ethernet	10	
J5	VGA	15	

4.1.1 Top Side



802151 V0.1
MSMST Media Board VGA Assembly

4.1.2 Bottom Side



802151 V0.1
MSMST Media Board VGA Assembly

4.1.3 X1 Media Port (PCIe, SDVO, HAD)

X1 is a high-speed connector for the media board interface. Connect it to X13 on the MSMST.

Pin	Description	Pin	Description
1	EN_V5.0_S0	27	HDA_CLK
2	EN_V3.3_S3	28	V_BAT
3	GND	29	GND
4	GND	30	GND
5	PCIE_RX1+	31	HDA_RST#
6	CLK_PCIE2+	32	HDA_SDIN0
7	PCIE_RX1-	33	HDA_SYNC
8	CKL_PCIE2-	34	HDA_SDOUT
9	GND	35	GND
10	GND	36	GND
11	PCIE_TX1+	37	SDVO_DDC_CLK
12	PCIE_WAKE#	38	SDVO_INT+
13	PCIE_TX1-	39	SDVO_DDC_DAT
14	PCIE_RST#	40	SDVO_INT-
15	5.0V	41	GND
16	5.0V	42	GND
17	SMB_CLK	43	SDVO_R+
18	SMB_ALERT#	44	SDVO_G+
19	SMB_DAT1	45	SDVO_R-
20	**NC**	46	SDVO_G-
21	5.0V	47	GND
22	5.0V	48	GND
23	**NC**	49	SDVO_CLK+
24	**NC**	50	SDVO_B+
25	**NC**	51	SDVO_CLK-
26	**NC**	52	SDVO_B-

4.1.4 X2 Audio Output

Pin	Description	Pin	Description
1	GND	5	Left channel
2	Right channel	6	**NC**
3	Right GND	7	Audio jack
4	Left GND	8	Audio jack GND

4.1.5 X3 Audio Input

Pin	Description	Pin	Description
1	GND	5	Left channel
2	Right channel	6	**NC**
3	Right GND	7	Audio jack
4	Left GND	8	Audio jack GND

4.1.6 J2 Digital Audio

Pin	Description
1	HDA_SPDIF1
2	HDA_SPDIF2
3	HDA-SPDIF3
4	NC
5	NC

4.1.7 J4 Gigabit Ethernet

Pin	Description	Pin	Description
1	VCC-Center	8	MDI_PLUS[3]
2	MDI_PLUS[0]	9	MDI_MINUS[3]
3	MDI_MINUS[0]	10	GND
4	MDI_PLUS[1]	D1	LEFT_GREEN+/YELLOW-
5	MDI_MINUS[1]	D2	LEFT_GREEN-/YELLOW+
6	MDI_PLUS[2]	D3	RIGHT_GREEN+/YELLOW-
7	MDI_MINUS[2]	D4	RIGHT_GREEN-/YELLOW+

4.1.8 J5 VGA

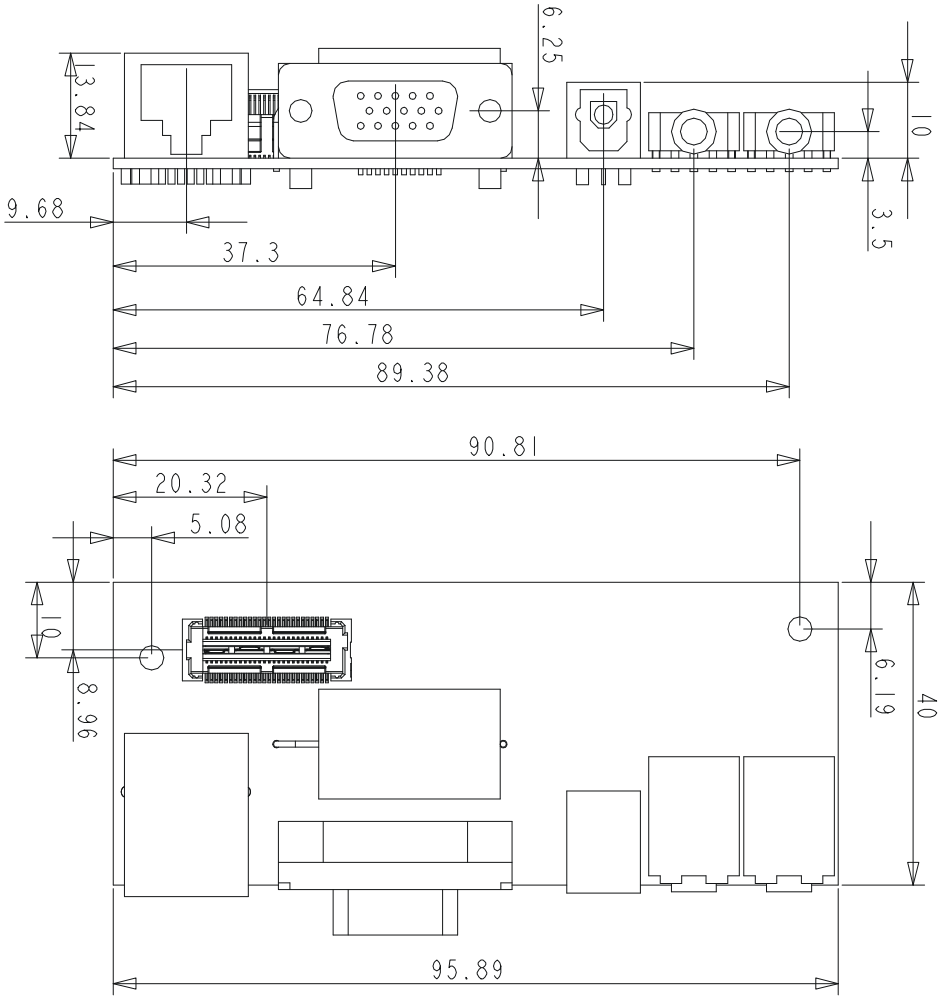
Pin	Description	Pin	Description
1	RED	9	5V
2	GREEN	10	GND_SYNC
3	BLUE	11	NC
4	NC	12	DDC_SDA
5	GND_DDC	13	HSYNC
6	GND_RED	14	VSYNC
7	GND_GREEN	15	DDC_SCL
8	GND_BLUE		

4.2 Jumpers

There are no jumpers on this product.

5 Design Considerations

5.1 Mechanical Drawings



6 Appendix A: Document Revision History

Revision	Date	Edited by	Changes
100	3.May.2011	GUM	Initial version.
101	23.May.2011	GUM	Updated mechanical drawings.
102	17.Jun.2011	WAS/MEG	Kontron formatting & English corrected; connector descriptions improved.

7 Index

Corporate Offices

Europe, Middle East & Africa

Kontron AG
Oskar-von-Miller-Strasse 1
85386 Eching/Munich
Germany
Tel.: +49 (0)8165/ 77 777
Fax: +49 (0)8165/ 77 219
info@kontron.com

Switzerland

Kontron Compact Computers AG
Nordstrasse 11/F
CH – 4542 Luterbach
Switzerland
Tel.: +41 (0)32 681 58 00
Fax: +41 (0)32 681 58 01
infokcc@kontron.com