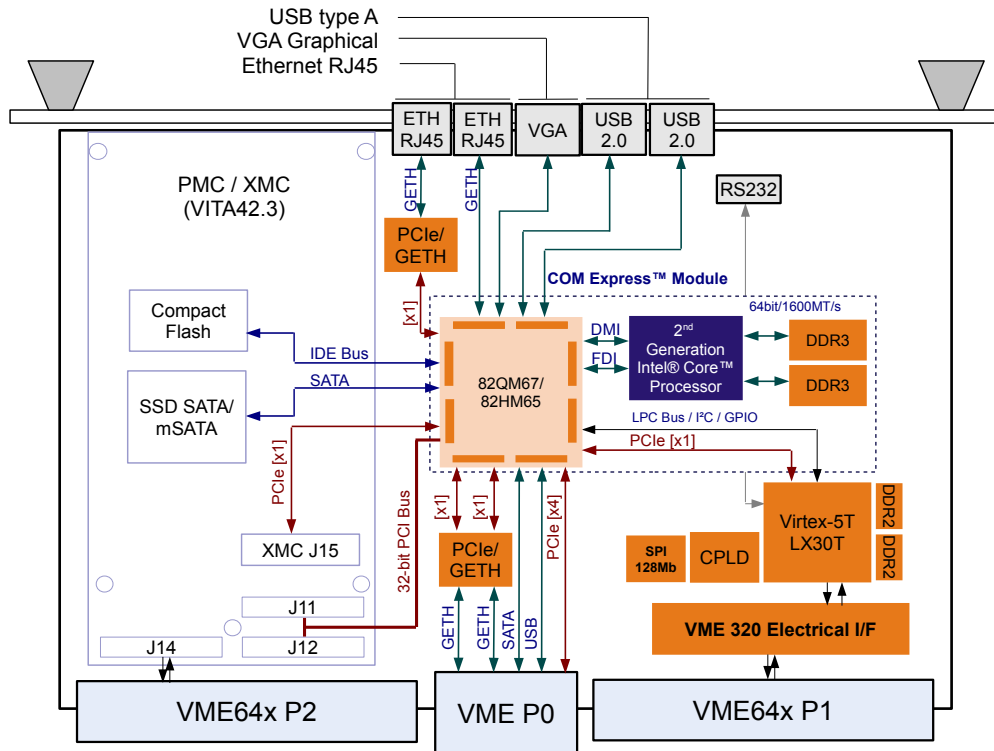




VCC_1104 "AROLLA" VME64x COM Express™ Carrier Board

Data Sheet VCC_1104_DS



Features

- VME64x 6U Single Board Computer
 - Single Slot (P_w up to 17[W])
 - Dual Slot (P_w up to 35[W])
- COM Express™ carrier envelope
 - Basic (125[mm] x 95[mm])
- VME64x Interface
 - FPGA based Ultra Low latency VME64x to PCI Express Bridge
 - VME Slot_1 function
 - VME64x Master/Slave
 - RMW and Atomic transactions
 - 2eVME & 2eSST
- Network Interfaces
 - GETH Front Panel / VME P0 31.1
- Graphical Interface
 - VGA SubD15
- I/O Interfaces
 - USB-A Front Panel / miniUSB-B
 - XMC PCIe x1 / PMC 32bit/33MHz
 - VME P0 PCIe x4
- Storage interfaces
 - CompactFlash
 - mSATA
 - SATA 2.5" (optional)

Overview

IOxOS Technologies introduces the VCC_1104, a 6U VME64x COM Express™ carrier board which provides a complete VME Single Board Computer based on latest generation of Intel® Core™ i5/i7 processors.

The wide availability of COM Express™ Modules from several suppliers, allows the upgrade of VME64x based applications to the latest computing technology. In addition, long term obsolescence can be easily managed with *de facto* standard COM Express™ modules.

The addition of a custom designed heat sink allows the support of single width VME boards carrying COM Express™ modules with power consumption up to 17[W] (such as dual core™ i7 @ 1.5 GHz).

The VME64x interface is built with an ultra low latency PCI Express to VME64x direct bridge implemented in the on-board Xilinx Virtex-5T FPGA. A specific area of this FPGA can be allocated for the implementation of user applications, powered by a proprietary FPGA Design Kit with direct access from PCI Express or LPC Bus.

The VCC_1104 provides enhanced IO support as quad Gigabit Ethernet interfaces including P0 VITA31.1, Three USB 2.0, VGA Graphical Interface, Serial IO, and PCI Express. It also embeds an on board CompactFlash socket, mSATA slot, and optional SATA 2.5" drive.

A single PMC / XMC (VITA 42.3) slot is available with ; PMC 32bit/33MHz std. (PCI 2.3) and Jn14 → VME P2 user IO direct connection (VITA 35), XMC PCI Express x1 GEN2.

Introduction

The VCC_1104 has been designed to provide high performance x86 32/64bits computing in legacy VME64x environments. It provides four (4) Gigabit Ethernet links with two of them through VME P0 connector fulfilling the VITA 31.1 standard.

To facilitate the on-site maintenance, the power supply infrastructure implements a Live Insertion (LI) controller supporting smooth power up/down process without interfering with the VME environment.

The VCC_1104 can also be manufactured to support extended temperature range.

VME64x Controller

The VME64x interface is built with a custom FPGA based bridge which has been successfully validated in most of IOxOS Technologies VME64x COTS:

- Direct PCI Express interface without intermediate PCI segment
- Complete VME Slot_1 with PRI/RRS, BTO/2eBTO
- VME Master A16:A24:A32/D08:D16:D32:BLT, MBLT
- VME Slave A24:A32/D08:D16:D32:BLT, MBLT
- 2eVME and 2eSST transactions
- Embedded IDMA Engines
- Private Shared Memory 256 MBytes
- 7 levels INTG/INTH
- Read-Modify-Write (RMW) and ATOMIC transactions support

VME64x P0 IO Assignment

The VCC_1104 provides the following IO interfaces through the VME P0 (legacy 2.0 [mm] or (*)UHM) connector :

- 2x Gigabit Ethernet (VITA 31.1)
- 1x SATA I / II(*)
- 1x USB 2.0 Host
- 1x PCI Express [x4] (*)
- GPIO controlled by the on-board FPGA

VME64x P2 User IO

The VCC_1104 is equipped with 5-rows VME P2 connectors providing:

- Jn14 64 User IO on rows A & C following VITA 35

Front panel IO Resources

The VCC_1104 provides following IO capability on its front panel:

- Dual Ethernet RJ45 10/100/1000 Base-T
- VGA Graphical Interface
- Dual USB 2.0 Host Type A
- PMX/XMC Mezzanine
- Push-button RESET
- Deported SubD9 Serial IO RS232

FPGA Design Kit

The VCC_1104 on-board Xilinx Virtex-5T FPGA allocates a specific area for the implementation of user applications. A comprehensive VHDL Design Kit is available for this purpose. The user area provides direct support for both PCI Express and LPC Bus interfaces.

Additional Features

- VME Power supplies with LI Controller
- Voltage & Temperature monitoring

Software Support

- LINUX OpenSuSE 11.4 32/64-bit
- VxWorks 6.9
- Windows XP/7 32/64-bit

Specifications

Power Estimation (PMC/XMC and COM Express™ not populated)	+5V → 1[A] (VITA 1.7 max 7.5[A]) +3.3V → 0.6 [A] +12V / -12V (only for PMC/XMC)
Compliance	VME64X VITA 1.1 + VITA 1.5-2003 XMC VITA 42.3
Temperature Operating	0°C to +55°C with 400 LFM (Commercial)
Regulatory Compliance	Immunity: EN50082-2 / EN55024 Emission: EN55022 Class A Safety: EN60950

Ordering Information

Article Reference	Product Description
VCC_1104-A0	Single slot VME board populated with Intel® dual-core™ i7-2610UE @ 1.5GHz (17[W])
VCC_1104-B0	Dual slot VME board populated with Intel® dual-core™ i5-2515E @ 2.5GHz (35[W])
VCC_1104-Xy	Consult IOxOS Technologies for additional COM Express™ support

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