OpenCPI Reference Platform, COTS Component Specification

Shepard Siegel, Atomic Rules LLC   (Shepard.Siegel@atomicrules.com)

Revision	Date	By	Notes
0.01	2009-03-09	ssiegel	Draft
0.02	2009-04-20	ssiegel	Added "rationale" text
0.03	2009-04-22	ssiegel	Added closed chassis option
0.04	2009-05-01	ssiegel	Name change, minor edits

This document specifies the COTS components used for the OpenCPI FPGA Reference Platform (OC-FRP). The parts and vendors specified herein have been selected for their ubiquity and low-cost. For most of the items listed, component substitutions may be made; however the burden of testing is then upon the user. Pricing is non-binding, quantity-one, guidance only.

Development and Target Computer, Hardware Components

It is possible to use one computer as both a development machine and a target. Table 1 below lists components central to the performance of the system.

Table 1 – FPGA Reference Platform, Hardware Components

Line	#	Manufacturer	Part Number	Cost	Description
1	1	www.evga.com	132-BL-E758-A1	$300.	X58 Motherboard
2	1	www.intel.com	Corei7 920	$280.	Nehalem 2.66GHz x4 Processor
3	2	www.corsair.com	DDR3 3x2GB	$190.	6x2GB (12GB) DDR3 1600 Memory
4	1	www.evga.com	01G-P3-1280	$335.	GTX280 240-core GPU
5	1	www.enermax.com	EMD625AWT	$160.	625W MODU82+ Power Supply
6	1	www.westerndigital.com	WD10EADS	$105	1TB SATA Disk Drive
7	1	www.antec.com	P182	$120.	ATX Mid Tower Computer Case
8	1	www.xilinx.com	HW-V5-ML555-G	$2200.	Xilinx ML555 V5 Dev Kit

Notes:
1. Cost estimated, quantity one, as observed online Q1-2009

All components in the table above, except for the ML555, are available from computer component retailers including www.newegg.com. The rationale for the selection of line items 1-7 is to satisfy the requirement of identifying one known and stable "x58-based Corei7 PC with 12GB RAM, strong GPU and reliable 625W power supply". Deviating from these specific selections should not significantly alter system behavior. For example, replacing the GTX280 GPU (cutting-edge "strong" in Q1-2009) with a different GPU should not change the behavior of OpenCPI applications not employing the GPU.

The ML555 development kit is available from www.avnet.com and www.nuhorizons.com . The Xilinx ML555 development kit includes the "Platform USB /JTAG programming cable". Not included with the ML555 kit are the optional 1000BASE-T SFP Transceivers (Finisar FCMJ-8521-3) from Avnet for $80. One or two are required for direct-to-FPGA GBE connectivity.

Not included in the table above are components which may vary based on the user's specific requirements. These include the CPU heat sink assembly, CD/DVD drive, keyboard, mouse, monitor and peripheral hardware needed to complete the system.

An open-frame computer case may be used as an alternative to the enclosed case specified in line item 7 when frequent access to board hardware is desired; or where there may be mechanical interference from other PCIe add-in cards with a taller profile. (For example, PCIe cards with top-mounted FMC/VITA-57 connectors, such as the Xilinx ML605, will protrude in the vertical dimension such that the case side panel may not be fitted.) One such open-frame case alternative offering is the "HSPC Top Deck Tech Station (standard size)" from www.highspeedpc.com for about $90.

Development and Target Computer, Software Components

Note: The information below is expected to change prior to document release. This note will be removed at such time as the elements are locked down and approved. Xilinx ISE 11.1 is presently in Beta L.31 (release date is April 27, 2009). We will advance to Beta L.33 or greater for work ahead of the production release.

Table 2 – FPGA Reference Platform, Software Components

Line	Manufacturer	Part Number	Price	Description
1	www.ubuntu.com	8.10-desktop-amd64	Free	Ubuntu 8.10 "Intrepid Ibex" 64-bit
2	www.xilinx.com	TBD	$2995.	Xilinx ISE 11.1 Logic Edition, Node-Locked