

OpenCPI Reference Platform 2 (ORP2), COTS Component Specification

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| Revision | Date | By | Notes |
|----------|------------|---------|--------------------------------|
| 0.01 | 2009-11-16 | ssiegel | Adopted from Original |
| 0.02 | 2009-12-09 | ssiegel | ISE 11.4 |
| 0.03 | 2009-12-13 | ssiegel | Included BIOS Revision |
| 0.04 | 2009-12-31 | ssiegel | RedHat Linux version clarified |
| 0.05 | 2010-01-24 | ssiegel | Checked Prices on Newegg |
| 0.06 | 2010-03-30 | ssiegel | Processor and GPU Refresh |
| 0.07 | 2010-08-17 | ssiegel | Update and Refresh |

This document specifies the COTS components used for the OpenCPI FPGA Reference Platform 2 (ORP2). 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.

ORP2 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 | Corei7-980X | \$1000. | Gulftown 3.33GHz 32nm Processor |
| 3 | 1 | www.corsair.com | DDR3 XMS3 12GB | \$310. | 6x2GB (12GB) DDR3 1600 Memory |
| 4 | 1 | www.evga.com | 012-P3-1470-AR | \$330. | GeForce GTX470 (Fermi) GPU |
| 5 | 1 | www.enermax.com | EMD625AWT | \$160. | 625W MODU82+ Power Supply |
| 6 | 1 | www.westerndigital.com | WD3000HLFS | \$190. | 300GB 10K SATA Disk Drive |
| 7 | 1 | www.antec.com | P182 | \$120. | ATX Mid Tower Computer Case |
| 8 | 1 | www.xilinx.com | EK-V6-ML605-G | \$2000. | Xilinx ML605 Virtex-6 Dev Kit |

Notes:

1. Cost estimated, quantity one, as observed online Q3-2010
2. The Xilinx ML605 includes a V6 LX240T device-locked copy of ISE Design Suite – Logic Edition

All components in the table above, except for the ML605, 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 a high-performance 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 GTX470 GPU (efficient, yet “strong” in Q3-2010) with a different GPU should not change the behavior of OpenCPI applications not employing the GPU.

The ML605 development kit is available from www.avnet.com and www.nuhorizons.com .

Not included in the table above are components which may vary based on the user's specific requirements. These include, but may not be limited to, the CPU heat sink assembly, CD/DVD optical 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

OpenCPI requires a 64b Linux OS; we have specified **RHEL5 WS 64b Desktop Workstation**. Backend development to Xilinx FPGAs requires ISE-LOGIC 12.3 or greater. A device-locked version of ISE is included with an [ML605](#). We expect to move ISE 12.3, when it becomes available, in H2-CY2010.

Table 2 – FPGA Reference Platform, Software Components

| Line | Manufacturer | Part Number | Price | Notes | Description |
|------|--|-------------------------------|---------|-------|---|
| 1 | www.redhat.com | RHEL5 WS 64b | \$179. | 2, 4 | Red Hat Enterprise Linux 5 64-bit Workstation |
| 2 | www.xilinx.com | EF-ISE-LOG-NL | \$2995. | 1 | Xilinx ISE Design Suite - Logic Edition |

Notes:

[1] A V6-LX240T device-locked version of the Xilinx ISE Design Suite – Logic Edition is **included** with the purchase of the ML605.

[2] Observed RHEL Kernel: 2.16.18-194.11.1.el5 (on 2010-08-17). Do not install [XEN] virtualization. Recommend connecting OS to [Red Hat Update](#), as OpenCPI development systems receive OS updates in this manner.

[3] [EVGA x58 Motherboard BIOS](#) Version **sz2z** (2009-11-30)

[4] RHEL5 WS 64b is an annual subscription...

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Web support, 2 business day response, unlimited incidents

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Multi-OS with Basic Subscription

Web support, 2 business day response, unlimited incidents

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Workstation with Basic Subscription

Web support, 2 business day response, unlimited incidents

1 Year \$179

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Workstation and Multi-OS with Basic Subscription

Web support, 2 business day response, unlimited incidents

1 Year \$219

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Workstation with Standard Subscription

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Workstation and Multi-OS with Standard Subscription

12x5 phone support, web support, unlimited incidents

1 Year \$339

[add to cart](#)

Development and Target Computer, Optional Components

This table lists optional components that may be used with OpenCPI.

Table 2 – FPGA Reference Platform, Optional Components

| Line | Manufacturer | Part Number | Price | Description |
|------|--|--------------------------|--------|-------------------------------------|
| 1 | www.u-blox.com | EVK-6T-0 | \$349. | GPS Precision Timing Evaluation Kit |
| 2 | www.4dsp.com | | | FMC Module |

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