

## **Highlight Reports**

PRCO304 - FPGA-based RISC microprocessor

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February 6, 2018

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## Revision History

**Table 1:** Document revisions.

Date	Highlight	Changes
06/02/2018	1	Highlight report 1.

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# 1 Highlight Reports

## 1.1 Highlight Report 1

PRCO304: Highlight Report 1
<b>Name:</b> Ben Lancaster
<b>Date:</b> 06/02/2018
<b>Active project stage:</b> Stage 1.1: Research and Requirement Gathering
<p><b>Review of work undertaken:</b> This week was assigned to work on stage 1.1: Research and requirement gathering.</p> <p><b>Research and requirement gathering:</b> Research into existing soft-core processor designs has been started to identify their features, targets, and advantages and disadvantages. Key existing soft-core processors found are:  - Xilinx' MicroBlaze: a 32-bit Xilinx FPGA embeddable core capable of running operating systems, like Linux. Exposes a configurable GUI to customise the build of the processor to suit designers requirements (like number of GPIO, interrupts, timers, etc.).  - ARM Cortex-A9: a 32-bit Xilinx and Altera FPGA core. Features out-of-order execution, compatible with existing ARM Thumb2 C compilers, and multi-core processing.</p> <p>I have used this research to aim my soft-core processor's requirements and architecture. To document and finalize my processors design and requirements, I have started a processor specification and reference document. This document outlines the processors features, architecture, compatibility, and instructions.</p> <p>Additional progress:  - Version control set up for documentation, highlight reports, and code bases.</p>
<p><b>Risks and Challenges:</b>  <b>Urgent risks:</b>  <b>New risks:</b>  <b>Existing risks:</b></p>
<p><b>Plan of work for the next week:</b>  Work will begin on Stage 1.2: Core high level design.</p> <p>Finalised specifications and architecture of the soft-core processor will be put into a processor specification and reference document.  Architecture, control, pipelines, will be visualised in this document.</p>
<p><b>Date(s) of supervisory meeting(s) since last Highlight:</b>  This is the 1st highlight report.  30/01/18 - An introductory meeting was held to discuss the project initiation document (PID) and gain feedback on the project.</p>
<p><b>Notes from supervisory meeting(s) held since last Highlight:</b>  Ensure risks are carefully explored and project core deliverables are realistic and achievable.</p>
<p><b>Stage review:</b>  N/A</p>