MEMO: TSR-03
DATE: November 3, 2017
TO: EFC LaBerge
FROM: Sabbir Ahmed, Jeffrey Osazuwa, Howard To, Brian Weber
SUBJECT: Team Status Report

1 Introduction

The Galois Field Arithmetic Unit will accept inputs to determine n, and to establish the field generating polynomial. The unit would serve as a computation engine for a relatively low-powered microcontroller, and would enable complex code and encryption algorithms. Project will include implementation of a Reed Solomon encoder and decoder using the GFAU. The purpose of this report is to detail the progress of the GFAU in the period of October 20, 2017 through November 3, 2017. This is the third status report for the GFAU project.

2 Completed Tasks

During this work period, the team has continued to make progress on the GFAU. Including the following achievements:

a) Several low level schematics have been designed for the system.

b) Multiple low level schematics have been integrated together to validate their data and functional flow.

c) Development of the VHDL modules for the operation subsystems has begun. Each members of the team has been assigned separate modules to take responsibility of.

d) Several algorithms have been considered for the multiplication and division operations and their trade-offs were studied.

e) The team has decided on utilizing two external memory chips to store the lookup tables of the generated terms. Parallel memory chips should allow more convenient conversions between terms and their symbolic and polynomial values.

f) A Statement of Work detailing the schedule and milestones of the project was developed and submitted to Dr. LaBerge.

3 Planned Tasks

a) Decide on the best algorithms for multiplication and division of Galois operands.

b) Polish and finalize the low level schematics which have VHDL modules associated with them.

c) Conduct further research on accessing data in external parallel memory chips.

d) Meet with Dr. Robucci or Dr. Mohsenin to discuss features of development boards and their trade-offs.

4 Current Issues

No issues in team dynamics or lack of resources, exist in the team so far.