HF Controls

HF CONTROLS CORPORATION

HFC-FPGA Amendment 4

Open Item Draft Response

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Rev A

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Reviewed By: Huaisong Xu

Approved By: Steve Yang

Revision History

Date	Revision	Author	Changes
1/21/2020	A0	Jordan Mott	Initial Draft
1/22/2020	A1	Jordan Mott	Post 1/22 meeting comments
2/6/2020	A	Jordan Mott	Release

Table of Contents

List of Figures

List of Tables

[ ]

1 SCOPE

[

]

2 CLARIFICATION FOR HFC-FPGA FCPU/X

2.1 APPLICATION PROCESSING FLOW

[

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Figure 1 Application Processing Flow Using OneStep

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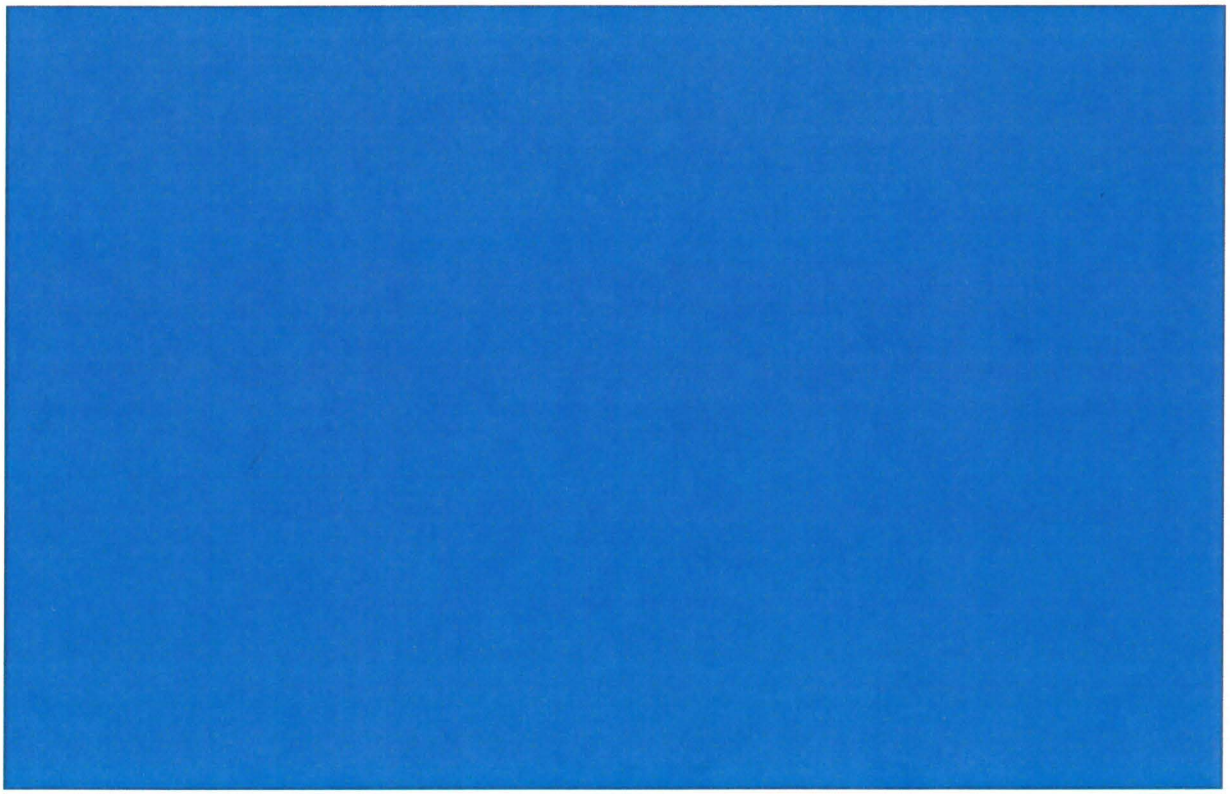

Figure 2 Platform and Application Digital Logic Interfaces

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2.1.1 Clarification for PROGRAMMING

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2.1.2 CLARIFICATION FOR SYSTEM COMMUNICATION CONFIGURATION

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Figure 3 HFC FPGA Node Station ID Configuration

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[

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2.2 HFC-FPGA FCPUX CONTROLLER BOOTUP (D-20, D-22, D-64)

[ ]

Figure 4 FCPUX System Boot Block Diagram

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[ ]

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Figure 5 HFC FPGA Controller Startup to Normal Operation

2.3 CONTROL FPGA NORMAL OPERATION (D-22, D-14)

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2.3.1 TOKEN ENGINE PROCESS CYCLE (D-22, D-44, D-64)

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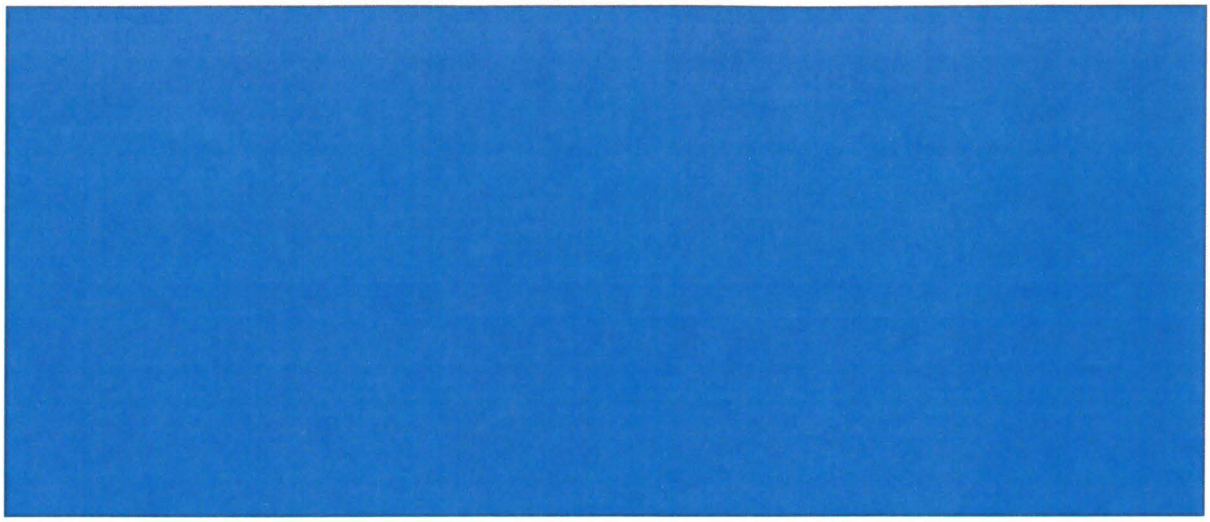

Figure 6 FCPUX Token Engine Process Enable Sequence

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Figure 7 HFC FPGA Normal Operation Process Dataflow

2.3.2 F-LINK DESIGN CLARIFICATION (D-22, D-64)

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2.3.2.1 F-LINK DATA FLOW – (D-15)

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2.3.2.2 F-LINK MFM CONTROL

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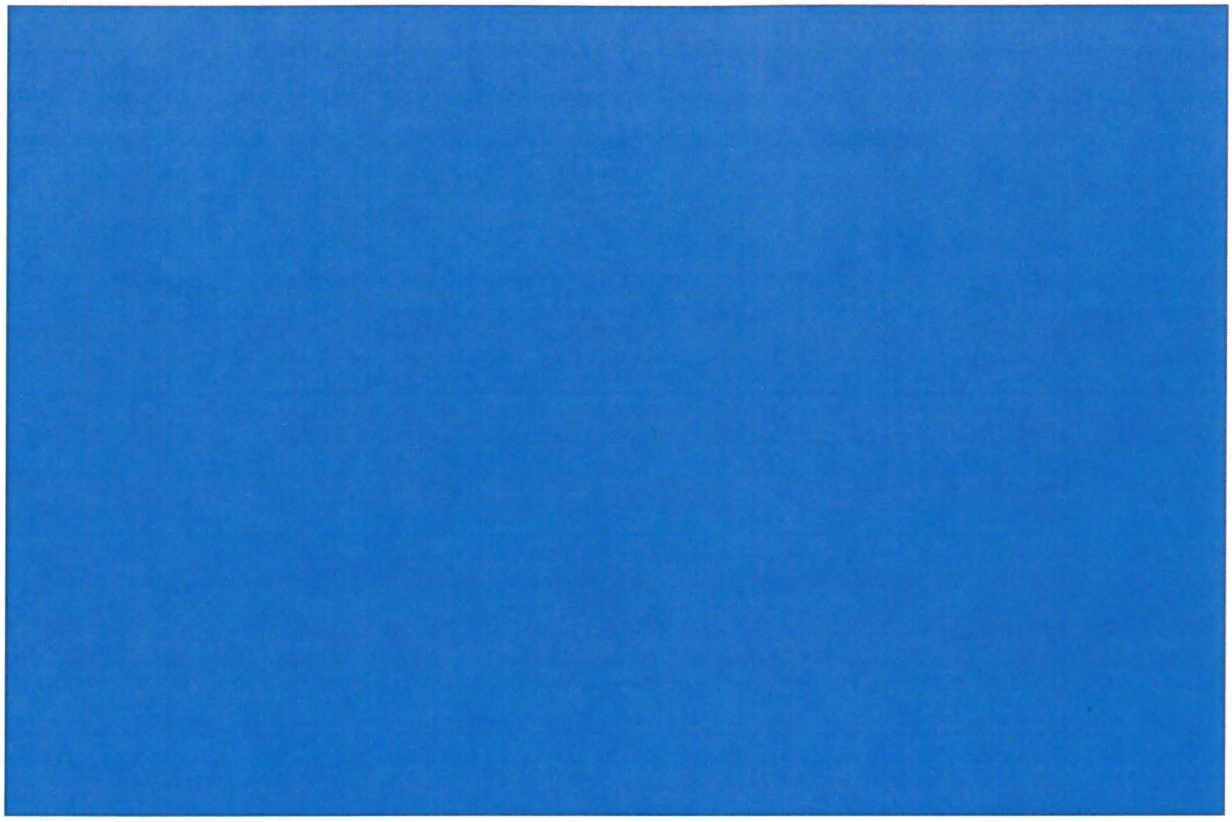

Figure 8 F-LINK MFM Control Flow Diagram

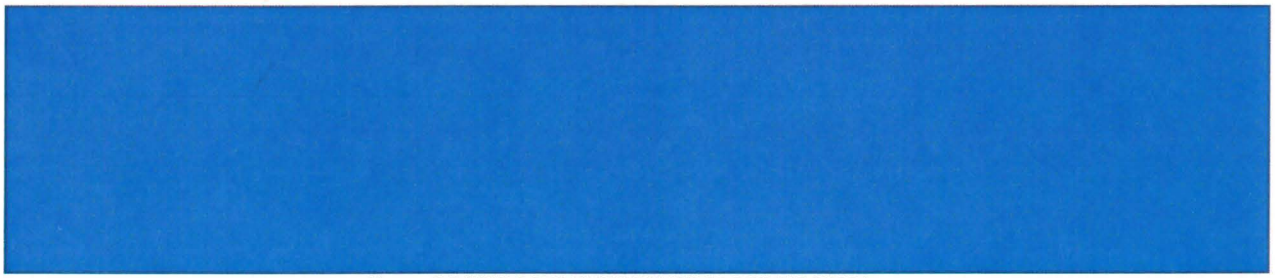

Figure 9 F-LINK DATA FLOW DETAIL BLOCK DIAGRAM

2.3.3 G-LINK (D-16, D-38, D-45)

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Figure 10 G-Link Data Flow Block Diagram

2.3.4 APPLICATION PROCESSING DESIGN CLARIFICATION (D-40)

[

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Figure 11 Application Processing Data Flow Block Diagram

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2.3.4.1 Application Defined Data movement (D-38, D-72)

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2.3.4.2 CQ4 Algorithm Verification

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Figure 12 CQ4 Block Test Block Diagram

2.3.4.3 Application Defined Timer Processing

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2.3.4.4 Application Defined Digital Logic Processing (D-18, D-19)

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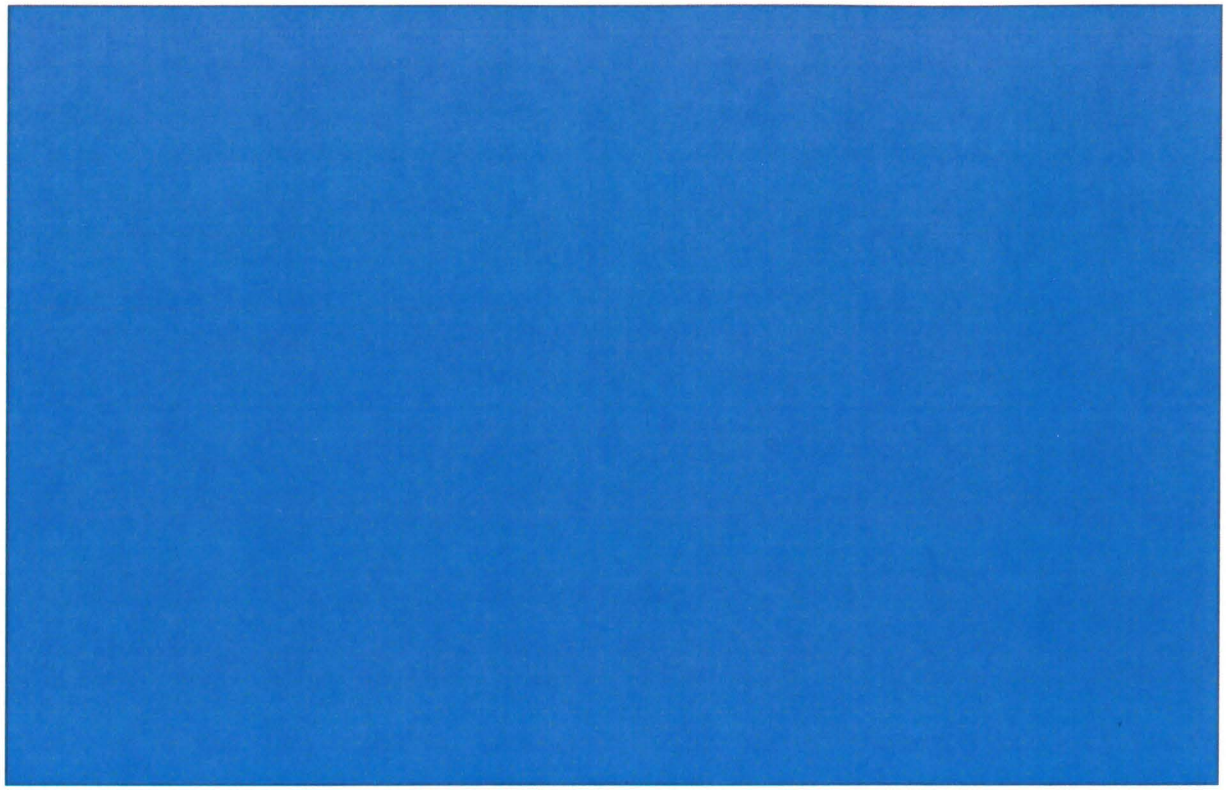

Figure 13 Application Digital Logic Input and Output

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2.3.4.5 Quality Data (D-18)

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2.3.5 REDUNDANCY INTERFACE – RIF (D-17)

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Figure 14 RIF Data Flow Block Diagram

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2.3.6 CONTROL/DIAGNOSTIC FPGA CLOCK DOMAINS (D-41)

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Figure 15 Control/Diagnostic FPGA Clock Domain Block Diagram

2.4 DIAGNOSTIC FPGA NORMAL OPERATION (D-48)

[

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Figure 16 Control/Diagnostic Functional Role Block Diagram

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3 HFC-FPGA WATCHDOG MECHANISMS

3.1 WATCHDOG NORMAL OPERATION (D-20)

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Figure 17 FPGA Module Watchdog Block Diagram

3.1.1 DIAGNOSTIC FPGA EXTERNAL RESET WATCHDOG (D-9, D-11)

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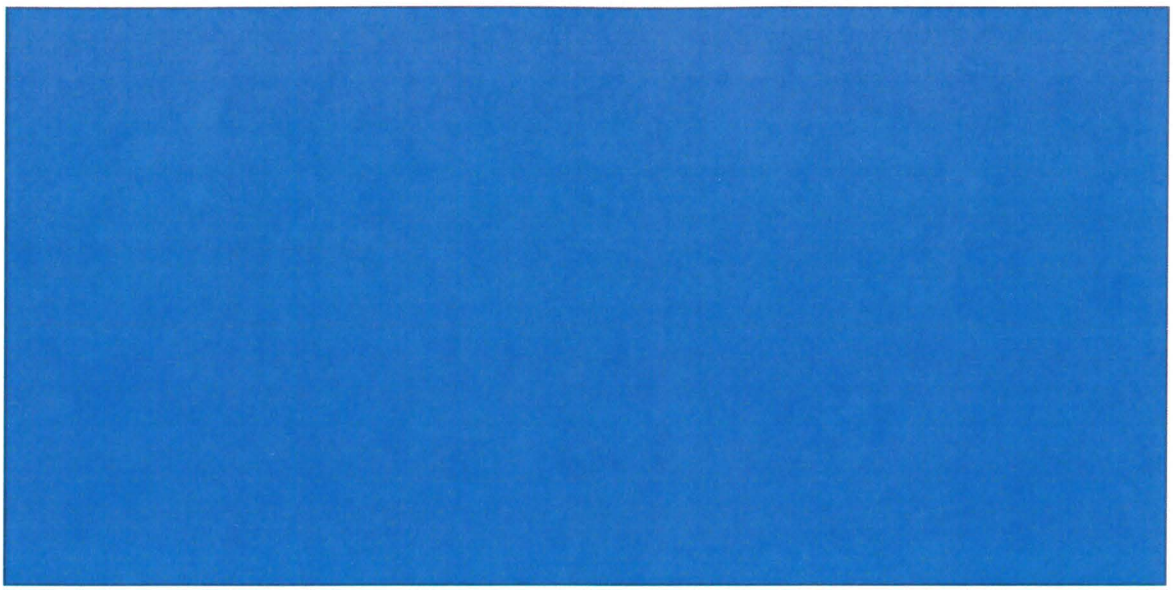

Figure 18 External Watchdog Circuit

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3.1.2 DIAGNOSTIC HEARTBEAT SEQUENCE (D-7, D-12, D-49-52)

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Figure 19 Sequence Number Diagnostic Flow

3.1.3 APPLICATION PROCESSING WATCHDOG (D-8, D-10, D-13)

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Figure 20 Application Watchdog Flow Chart

3.1.4 WATCHDOG ELEMENT OPERATION TIMING DEPENDANCE (D-6)

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4 HFC-FPGA G-LINK GATEWAY (D-38-39, D-46, D-59, D68-72)

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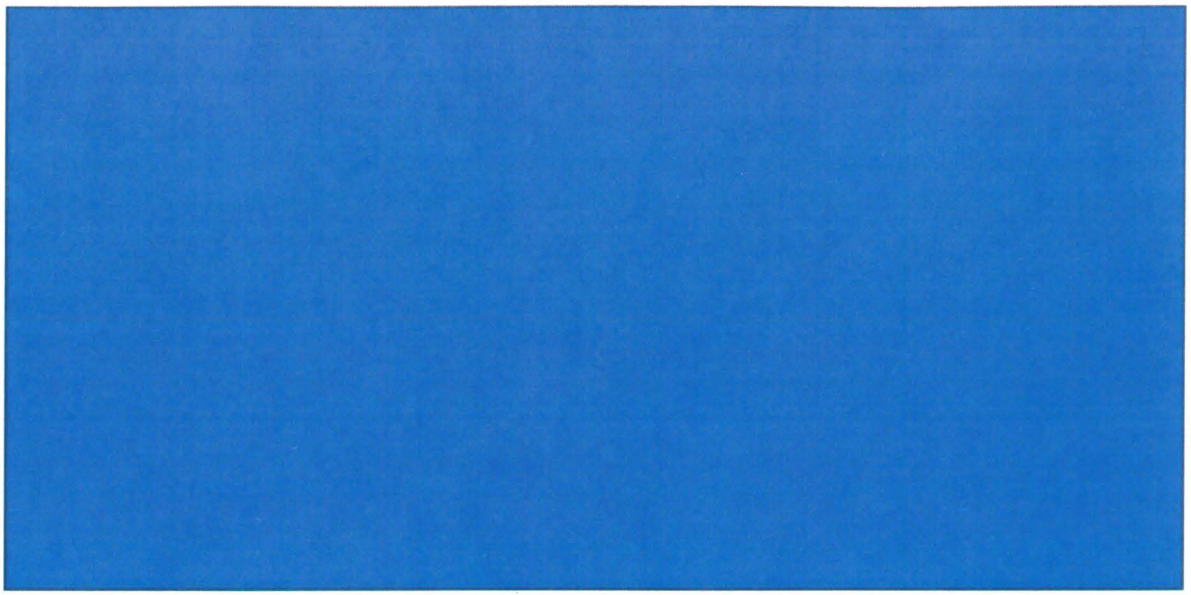

Figure 21 Interface between FPGA and CPU of HFC-FPC08 G-Link Gateway

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4.1 PROCESSOR AND FPGA NORMAL OPERATION

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4.1.1 G-LINK DOWNLOAD DATA TRANSFER

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4.1.2 G-LINK DATA TRANSFER – UPLOAD

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Figure 22 G-Link Control Block Diagram

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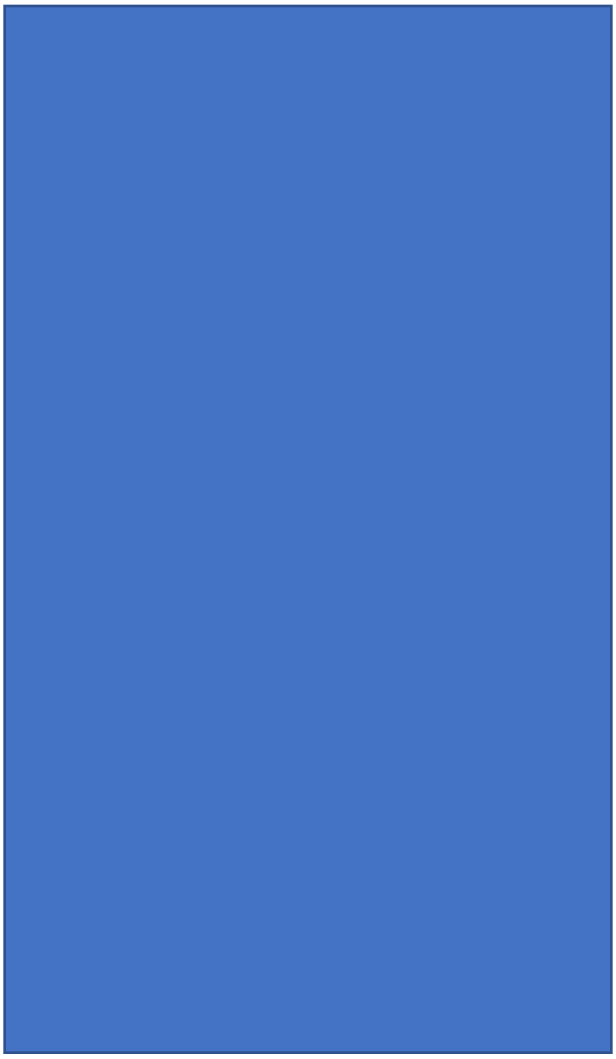

Figure 23 G-Link Control State Flow

4.1.3 G-LINK DOWNLOAD DATA TYPES (D-74)

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5 ANALOG INPUT CALIBRATION (D-73)

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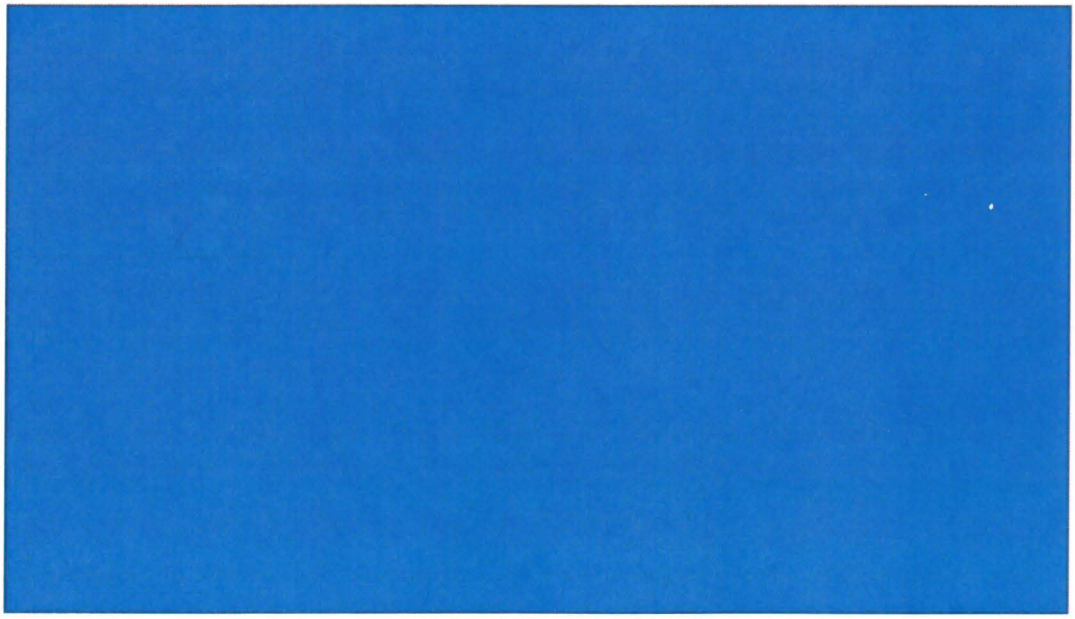

Figure 24 Analog Input Calibration Circuit Block Diagram

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Figure 25 Analog Input Correction Algorithm

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6 HFC-FPGA DEVICE FABRIC RESOURCE USAGE (D-60)

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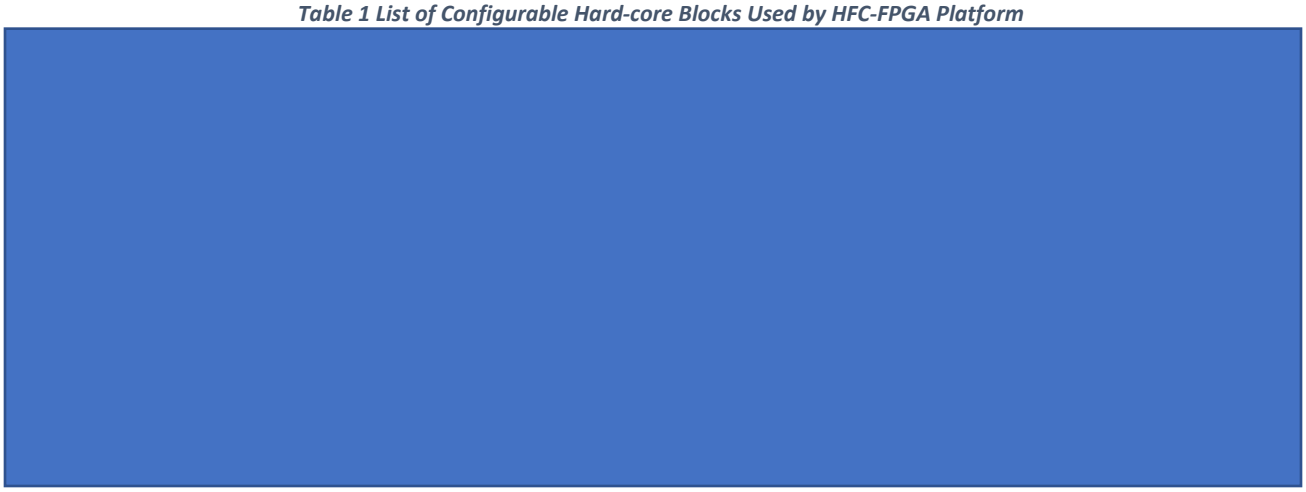
Table 1 List of Configurable Hard-core Blocks Used by HFC-FPGA Platform



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7 DIAGNOSTIC SUMMARY

(D-6, D-10, D-20, D-27, D-47, D-49, D-50, D-62, D-63, D-51)

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8 Appendix

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Table 2 Cross Reference Table