Lattice Semiconductor Corporation - LFE5U-85F-6BG554C Datasheet

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Understanding Embedded - FPGAs (Field Programmable Gate Array)

Embedded - FPGAs, or Field Programmable Gate Arrays, are advanced integrated circuits that offer unparalleled flexibility and performance for digital systems. Unlike traditional fixed-function logic devices, FPGAs can be programmed and reprogrammed to execute a wide array of logical operations, enabling customized functionality tailored to specific applications. This reprogrammability allows developers to iterate designs quickly and implement complex functions without the need for custom hardware.

Applications of Embedded - FPGAs

The versatility of Embedded - FPGAs makes them indispensable in numerous fields. In telecommunications.

Details	
Product Status	Active
Number of LABs/CLBs	21000
Number of Logic Elements/Cells	84000
Total RAM Bits	3833856
Number of I/O	259
Number of Gates	-
Voltage - Supply	1.045V ~ 1.155V
Mounting Type	Surface Mount
Operating Temperature	0°C ~ 85°C (TJ)
Package / Case	554-FBGA
Supplier Device Package	554-CABGA (23x23)
Purchase URL	https://www.e-xfl.com/product-detail/lattice-semiconductor/lfe5u-85f-6bg554c

Contents

Acronyms in This Document 9
1. General Description 10
1.1. Features 10
2. Architecture 12
2.1. Overview 12
2.2. PFU Blocks 13
2.2.1. Slice 14
2.2.2. Modes of Operation 17
2.3. Routing 18
2.4. Clocking Structure 18
2.4.1. sysCLOCK PLL 18
2.5. Clock Distribution Network 19
2.5.1. Primary Clocks 20
2.5.2. Edge Clock 21
2.6. Clock Dividers 22
2.7. DDRDLL 23
2.8. sysMEM Memory 24
2.8.1. sysMEM Memory Block 24
2.8.2. Bus Size Matching 25
2.8.3. RAM Initialization and ROM Operation 25
2.8.4. Memory Cascading 25
2.8.5. Single, Dual and Pseudo-Dual Port Modes 25
2.8.6. Memory Core Reset 26
2.9. sysDSP™ Slice 26
2.9.1. sysDSP Slice Approach Compared to General DSP 26
2.9.2. sysDSP Slice Architecture Features 27
2.10. Programmable I/O Cells 30
2.11. PIO 32
2.11.1. Input Register Block 32
2.11.2. Output Register Block 33
2.12. Tristate Register Block 34
2.13. DDR Memory Support 35
2.13.1. DQS Grouping for DDR Memory 35
2.13.2. DLL Calibrated DQS Delay and Control Block (DQSBUF) 36
2.14. sysI/O Buffer 38
2.14.1. sysI/O Buffer Banks 38
2.14.2. Typical sysI/O I/O Behavior during Power-up 39
2.14.3. Supported sysI/O Standards 39
2.14.4. On-Chip Programmable Termination 40
2.14.5. Hot Socketing 40
2.15. SERDES and Physical Coding Sublayer 41
2.15.1. SERDES Block 43
2.15.2. PCS 43
2.15.3. SERDES Client Interface Bus 44
2.16. Flexible Dual SERDES Architecture 44
2.17. IEEE 1149.1-Compliant Boundary Scan Testability 44
2.18. Device Configuration 45
2.18.1. Enhanced Configuration Options 45
2.18.2. Single Event Upset (SEU) Support 45
2.18.3. On-Chip Oscillator 46
2.19. Density Shifting 46
3. DC and Switching Characteristics 47

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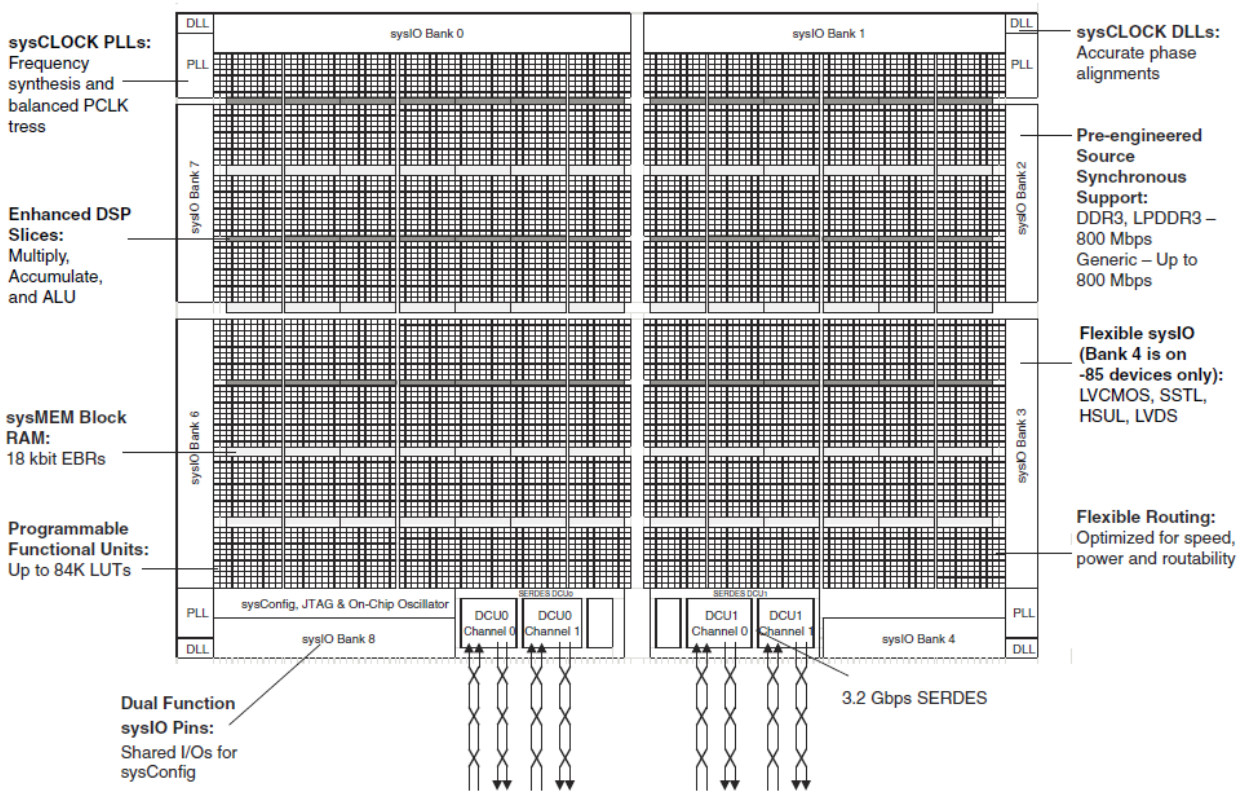

Note: There is no Bank 4 in -25 and -45 devices.
There are no PLL and DLL on the top corners in -25 devices.

Figure 2.1. Simplified Block Diagram, LFE5UM/LFE5UM5G-85 Device (Top Level)

2.2. PFU Blocks

The core of the ECP5/ECP5-5G device consists of PFU blocks. Each PFU block consists of four interconnected slices numbered 0-3, as shown in Figure 2.2. Each slice contains two LUTs. All the interconnections to and from PFU blocks are from routing. There are 50 inputs and 23 outputs associated with each PFU block.

The PFU block can be used in Distributed RAM or ROM function, or used to perform Logic, Arithmetic, or ROM functions. Table 2.1 shows the functions each slice can perform in either mode.

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