



## **USB3-GbE VIP IO Board**

## **Evaluation Board User Guide**

FPGA-EB-02016-1.0

May 2018

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## Acronyms in This Document

A list of acronyms used in this document.

| Acronym          | Definition                         |
|------------------|------------------------------------|
| USB              | Universal Serial Bus               |
| GbE              | Gigabit Ethernet                   |
| I <sup>2</sup> C | Inter-Integrated Circuit           |
| LDO              | Low Dropout                        |
| LED              | Light-emitting Diode               |
| LVDS             | Low-Voltage Differential Signaling |
| SPI              | Serial Peripheral Interface        |
| VIP              | Video Interface Platform           |

# 1. Introduction

This document describes the Lattice Semiconductor USB3-GbE VIP IO Board. This board is designed to work with the Lattice Video Interface Platform (VIP) board interconnect system.

This user guide includes descriptions of board components, schematics, and bill of materials.

Key features of the USB3-GbE VIP IO Board include:

- Onboard industrial grade TI DP83867IR Gigabit Ethernet PHY with support 10/100/1000 Ethernet
- Onboard Cypress FX3 USB3.1 controller
- Two 60-pin Rugged High-Speed Headers

Figure 1.1 shows the top view of the USB3-GbE VIP IO Board and its key components. Figure 1.2 shows the bottom view of the board.

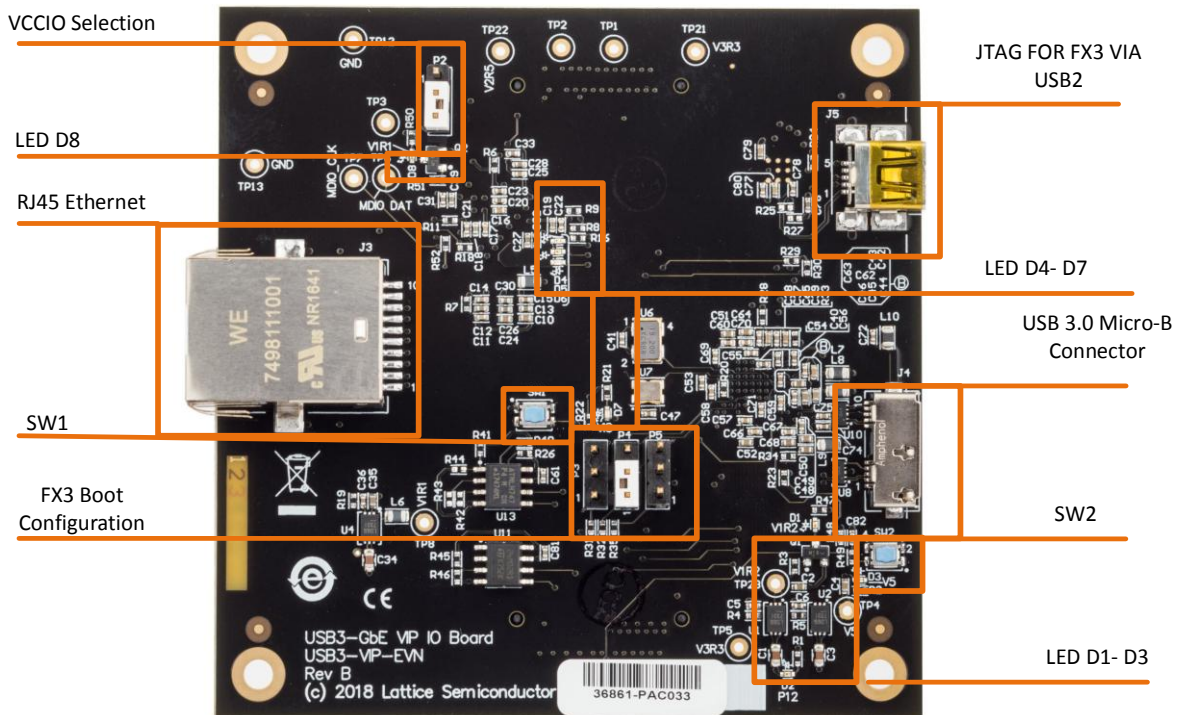
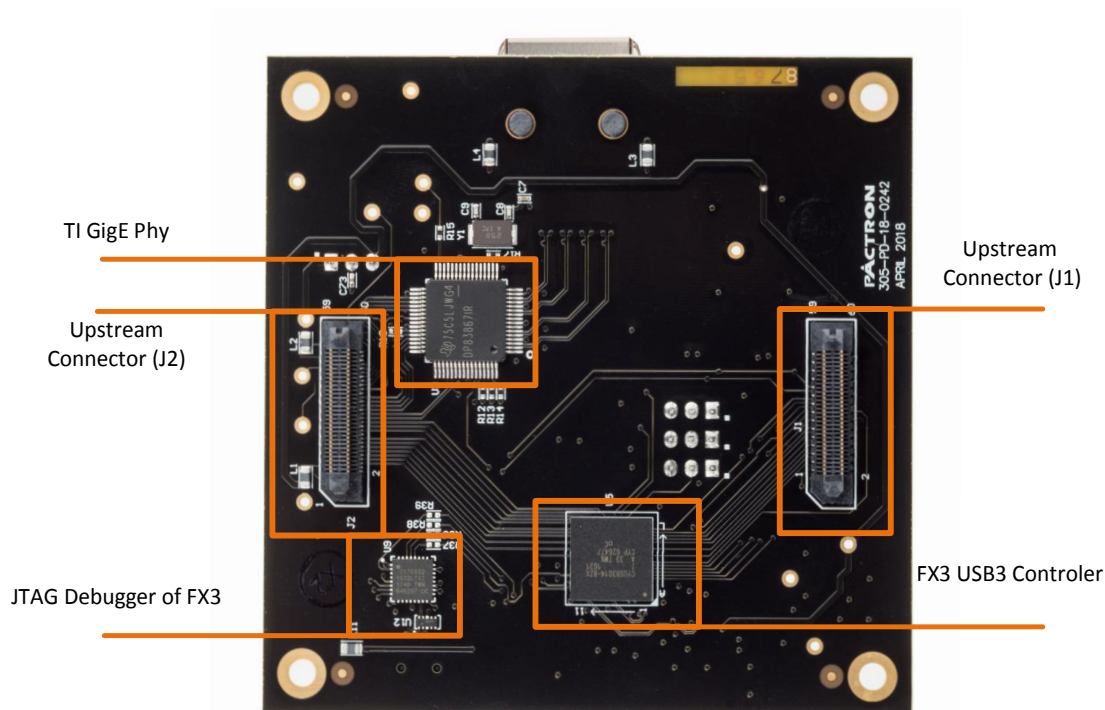


Figure 1.1. Top View of USB3-GbE VIP IO Board



**Figure 1.2. Bottom View of USB3-GbE VIP IO Board**

## 1.1. Further Information

The following references provide detailed information on the USB3-GbE VIP IO Board:

- [Appendix A. USB3-GbE VIP IO Board Schematics](#)
- [Appendix B. USB3-GbE VIP IO Board Bill of Materials](#)
- For more information on boards and kits available for the VIP (Video Interface Platform) system visit [www.latticesemi.com/vip](http://www.latticesemi.com/vip).
- For details on the Texas Instruments DP83867IR Gigabit Ethernet PHY, visit the Texas Instruments website at [www.ti.com](http://www.ti.com).
- For details on the Cypress FX3 USB3.1 controller, visit the Cypress website at [www.cypress.com](http://www.cypress.com).

## 2. Functional Description

The USB3-GbE VIP IO Board provides USB3 and Gigabit Ethernet connectivity for the ECP5 VIP Processor Board. The Gigabit Ethernet Phy and the USB3 controller work independently.

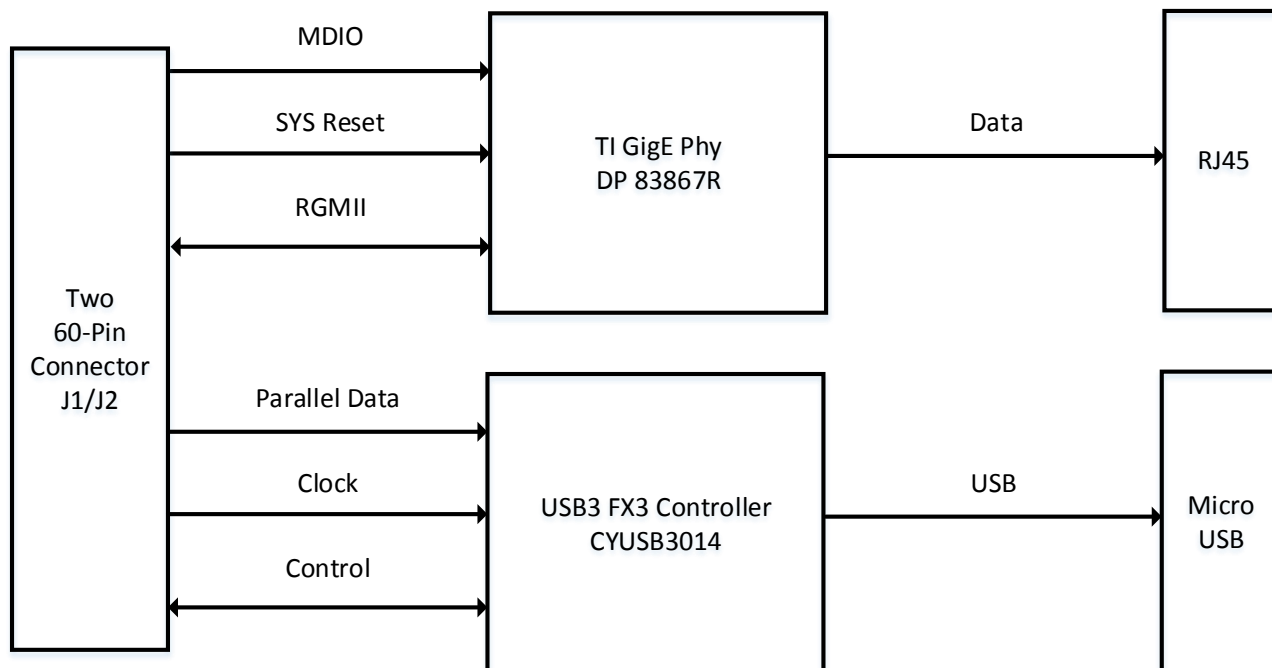


Figure 2.1. Functional Block Diagram

### 2.1. Switches and Buttons

The push button switch, SW1, is connected to the CTL10\_GPIO signal of the FX3 USB Controller. The push button switch, SW2, is connected to the System Reset of the board. Pressing SW2 provides logic 0 to the TI DP83687 and CYUSB3014 Reset pin. The RESET signal is also connected to GSRN on connector J1, allowing SW2 to control the reset signal for other connected boards.

### 2.2. Gigabit Ethernet Interface

The RJ45 connector, J3, provides Gigabit Ethernet connectivity via a standard Cat6 Ethernet cable.

### 2.3. USB3 Interface

The USB 3.0 Micro-B connector, J4, provides USB connectivity via a Micro USB 3.0 cable.

### 3. High-Speed Connectors

The two 60-pin high-speed headers, connectors J1 and J2, are used to connect ECP5 VIP Processor Board.

**Table 3.1. Connector J1**

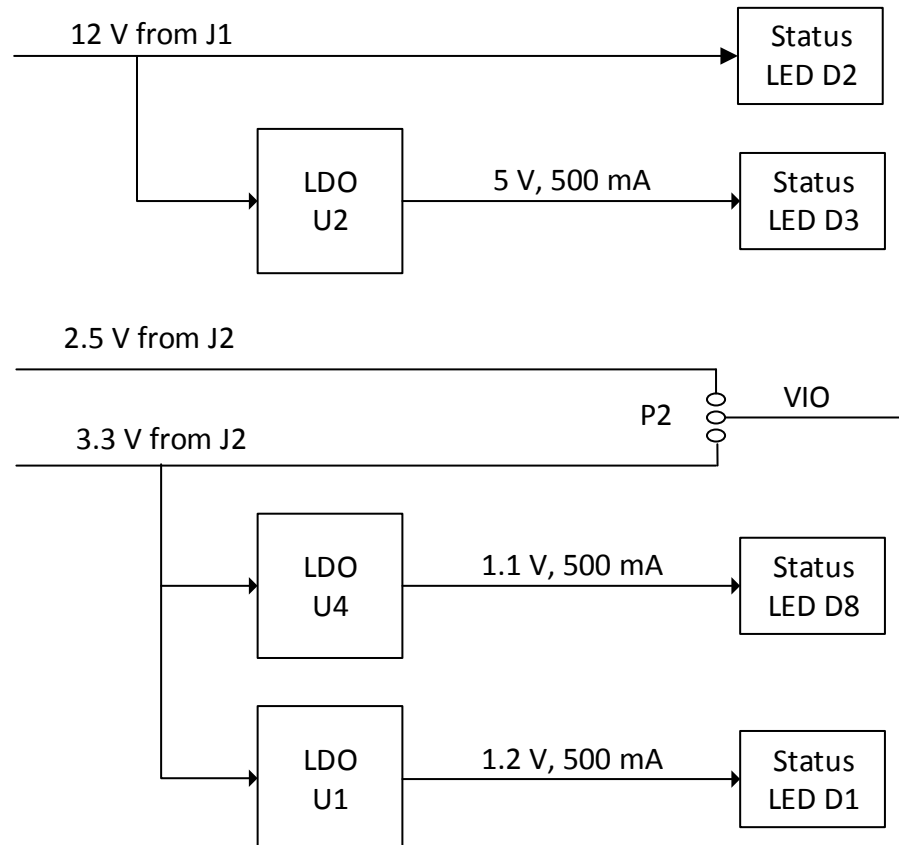
| J1 Connector Pin                                                            | Signal Name     | Device - pin        | Description                      |
|-----------------------------------------------------------------------------|-----------------|---------------------|----------------------------------|
| 1                                                                           | GND             | —                   | —                                |
| 2                                                                           | P12             | —                   | —                                |
| 3                                                                           | CLK_OUT         | —                   | —                                |
| 4                                                                           | P12             | —                   | —                                |
| 5                                                                           | FX3_D24         | FX3 - DQ24          | —                                |
| 6                                                                           | P12             | —                   | —                                |
| 7                                                                           | GND             | —                   | —                                |
| 8                                                                           | P12             | —                   | —                                |
| 9                                                                           | FX3_D27         | FX3 - DQ27          | —                                |
| 10                                                                          | FX3_D31         | FX3 - DQ31          | —                                |
| 11                                                                          | FX3_D25         | FX3 - DQ25          | —                                |
| 12                                                                          | FX3_D28         | FX3 - DQ28          | —                                |
| 13                                                                          | GND             | —                   | —                                |
| 14                                                                          | GND             | —                   | —                                |
| 15                                                                          | FX3_D22         | FX3 - DQ22          | —                                |
| 16                                                                          | FX3_SYNC        | FX3 - CTL8_GPIO     | —                                |
| 17                                                                          | FX3_D21         | FX3 - DQ21          | —                                |
| 18                                                                          | FX3_D26         | FX3 - DQ26          | —                                |
| 19                                                                          | GND             | —                   | —                                |
| 20                                                                          | GND             | —                   | —                                |
| 21                                                                          | FX3_D19         | FX3 - DQ19          | —                                |
| 22                                                                          | FX3_D16         | FX3 - DQ16          | —                                |
| 23                                                                          | FX3_D18         | FX3 - DQ18          | —                                |
| 24                                                                          | MDIO_DATA       | DP - MDIO—          | MANAGEMENT DATA I/O              |
| 26                                                                          | GND             | —                   | —                                |
| 27                                                                          | FX3_SPI_SCK     | SPISCK_UARTRTS_GPIO | —                                |
| 28                                                                          | SYS_RST_N       |                     | Global System Reset              |
| 29                                                                          | FX3_SPI_MOSI    | FX3- GPIO_I2SWS     | —                                |
| 30                                                                          | MDIO_CLK        | DP - MDC            | MANAGEMENT DATA CLOCK            |
| 31                                                                          | FX3_SPI_MISO    | GPIO_I2SMCLK        | —                                |
| 32                                                                          | FX3_D29         | FX3 - DQ29          | —                                |
| 33                                                                          | FX3_SPI_CS_N    | SPISSN_UARTCTS_GPIO | —                                |
| 34                                                                          | GND             | —                   | —                                |
| 35                                                                          | FX3_FPGA_DONE   | FX3 - GPIO_I2SCLK   | —                                |
| 37                                                                          | FX3_FPGA_INIT_N | FX3 - GPIO_I2SSD    | —                                |
| 40                                                                          | GND             | —                   | —                                |
| 41                                                                          | FX3_I2C_SCL     | FX3 - I2C_SCL       | I <sup>2</sup> C Interface Clock |
| 43                                                                          | FX3_I2C_SDA     | FX3 - I2C_SDA       | I <sup>2</sup> C Interface Data  |
| 46                                                                          | GND             | —                   | —                                |
| 52                                                                          | GND             | —                   | —                                |
| 55                                                                          | GND             | —                   | —                                |
| 25, 36, 38, 39, 42, 44, 45, 47,<br>48, 49, 50, 51, 53, 54, 56, 57,<br>59,60 | Not Connected   | —                   | —                                |

**Table 3.2. Connector J2**

| J1 Connector Pin | Signal Name   | Device - pin      | Description                           |
|------------------|---------------|-------------------|---------------------------------------|
| 1, 2, 3, 4       | 3.3V          | —                 | —                                     |
| 5                | FX3_D0        | FX3 - DQ0         | —                                     |
| 6                | FX3_D3        | FX3 - DQ3         | —                                     |
| 7                | FX3_D4        | FX3 - DQ4         | —                                     |
| 8                | FX3_D6        | FX3 - DQ6         | —                                     |
| 9                | FX3_D15       | FX3 - DQ15        | —                                     |
| 10               | FX3_D8        | FX3 - DQ8         | —                                     |
| 11               | FX3_D7        | FX3 - DQ7         | —                                     |
| 12               | FX3_D10       | FX3 - DQ10        | —                                     |
| 13               | FX3_PCKTEND_N | FX3 - CTL7_PKTEND | —                                     |
| 14               | FX3_D12       | FX3 - DQ12        | —                                     |
| 15               | FX3_SLRD_N    | FX3 - CTL3_SLRD   | —                                     |
| 16               | FX3_D11       | FX3 - DQ11        | —                                     |
| 17               | FX3_D14       | FX3 - DQ14        | —                                     |
| 18               | FX3_D13       | FX3 - DQ13        | —                                     |
| 19               | FX3_PCLK      | FX3 - PCLK_CLK—   | —                                     |
| 20, 21           | GND           | —                 | —                                     |
| 22               | FX3_D9        | FX3 - DQ9         | —                                     |
| 23               | FX3_A1        | FX3 - CTL11_A1    | —                                     |
| 24               | FX3_SLCS_N    | FX3 - CTL0_SLCS   | —                                     |
| 25               | FX3_A0        | FX3 - CTL12_A0    | —                                     |
| 26               | FX3_SLWR_N    | FX3 - CTL1_SLWR   | —                                     |
| 27               | FX3_D17       | FX3 - DQ12        | —                                     |
| 28               | RGMII_RXCTRL  | DP -RX_DV/RX_CTRL | RECEIVE DATA VALID or RECEIVE CONTROL |
| 29               | FX3_D20       | FX3 - DQ20        | —                                     |
| 30               | RGMII_TXCTRL  | DP -TX_EN/TX_CTRL | TRANSMIT ENABLE or TRANSMIT CONTROL   |
| 31               | FX3_D23       | FX3 - DQ23        | —                                     |
| 32               | RGMII_RXD3    | DP -RX_D3         | RECEIVE DATA Bit 3                    |
| 33               | FX3_D5        | FX3 - DQ5         | —                                     |
| 35               | FX3_D1        | FX3 - DQ1         | —                                     |
| 36               | RGMII_RXD1    | DP -RX_D1         | RECEIVE DATA Bit 1                    |
| 37               | FX3_D2        | FX3 - DQ2         | —                                     |
| 38               | RGMII_RXD0    | DP -RX_D0         | RECEIVE DATA Bit 0                    |
| 39, 40           | GND           | —                 | —                                     |
| 41               | FX3_FLAG_A    | FX3 - CTL4_FLAGA  | —                                     |
| 42               | RGMII_TXCLK   | DP -GTX_CLK       | GMII and RGMII TRANSMIT CLOCK         |
| 43               | FX3_SLOE_N    | FX3 - CTL2_SLOE   | —                                     |
| 44               | RGMII_TXD0    | DP -TX_D0         | GMII TRANSMIT DATA Bit 0              |
| 45               | FX3_FLAG_B    | FX3 - CTL5_FLAGB— | —                                     |
| 46               | RGMII_TXD1    | DP -TX_D1         | GMII TRANSMIT DATA Bit 1              |
| 47               | FX3_D30       | FX3 - DQ30        | —                                     |
| 48               | RGMII_TXD2    | TX_D2             | GMII TRANSMIT DATA Bit 2              |
| 49               | TP1           | —                 | —                                     |
| 50               | RGMII_TXD3    | TX_D3             | GMII TRANSMIT DATA Bit 3              |
| 51               | TP2           | —                 | —                                     |
| 52               | RGMII_RXCLK   | DP -RX_CLK        | RECEIVE CLOCK                         |
| 54               | TP3           | —                 | —                                     |
| 53, 55, 56       | GND           | —                 | —                                     |
| 57, 58, 59, 60   | 2.5V          | —                 | —                                     |

## 4. Power Supply

Board power is supplied through connectors J1 and J2. Figure 4.1 shows the power distribution scheme. Header P2 is used to select VCCIO for FX3 and GbE PHY.



**Figure 4.1. Power Distribution Scheme**

## 5. User LEDs and Headers

Eight discrete LEDs (light-emitting diodes) are available to the user.

**Table 5.1. User LEDs**

| Signal | LED # | Source       | Color  |
|--------|-------|--------------|--------|
| LED1   | D1    | 1.2 V LDO    | Green  |
| LED2   | D2    | 12 V         | Green  |
| LED3   | D3    | 5.0 V        | Green  |
| LED4   | D4    | Activity     | Yellow |
| LED5   | D5    | Speed 1000   | Green  |
| LED6   | D6    | Link up      | Blue   |
| LED7   | D7    | 1.1 V LDO    | Green  |
| LED8   | D8    | FX3 user LED | Blue   |

The USB3-GbE VIP IO Board has four 3-pin configuration headers. Header J2 allows to configure the applied voltage to the board. The user can select either 3.3 V or 2.5 V. Header J3, J4, and J5 provide the bootstrapping options for the Boot selection of the FX3 USB controller.

**Table 5.2. Header J2**

| Description | Header J2 Pin 1 | Header J2 Pin2 | Header J2 Pin 3 |
|-------------|-----------------|----------------|-----------------|
| VCCIO       | V2R5            | VIO            | V3R3            |

**Table 5.3. Header J3**

| Description        | Header J3 Pin 1 | Header J3 Pin2 | Header J3 Pin 3 |
|--------------------|-----------------|----------------|-----------------|
| FX3 Boot Selection | VIO             | PMODE0         | GND             |

**Table 5.4. Header J4**

| Description        | Header J4 Pin 1 | Header J4 Pin2 | Header J4 Pin 3 |
|--------------------|-----------------|----------------|-----------------|
| FX3 Boot Selection | VIO             | PMODE1         | GND             |

**Table 5.5. Header J5**

| Description        | Header J5 Pin 1 | Header J5 Pin2 | Header J5 Pin 3 |
|--------------------|-----------------|----------------|-----------------|
| FX3 Boot Selection | VIO             | PMODE2         | GND             |

## 6. Ordering Information

Please visit [www.latticesemi.com/boards](http://www.latticesemi.com/boards) for the latest ordering information.

**Table 6.1. Reference Part Number**

| Description           | Ordering Part Number |
|-----------------------|----------------------|
| USB3-GbE VIP IO Board | USB3-VIP-EVN         |

## References

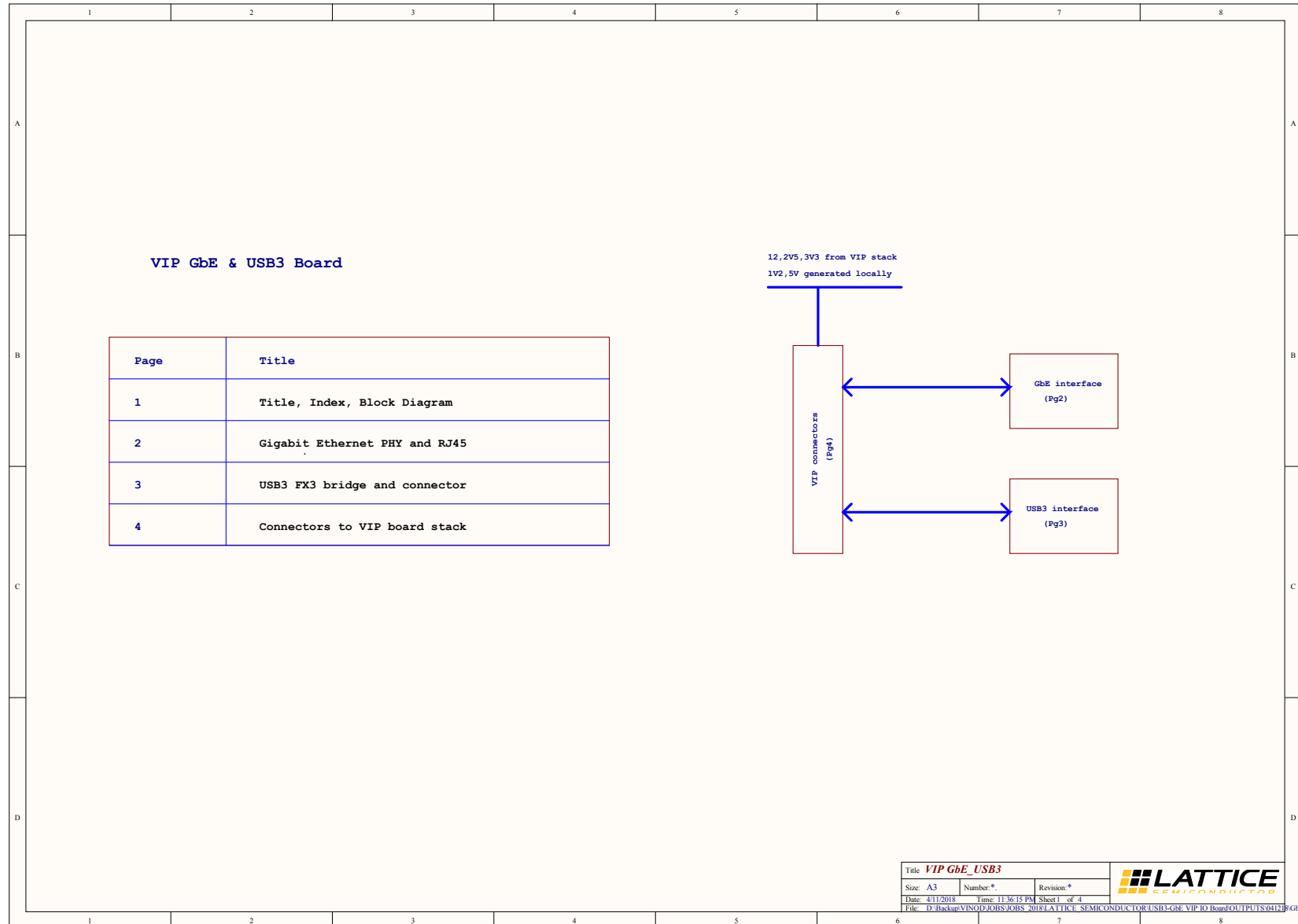
For more information, refer to the following documents:

- [Lattice Embedded Vision Development Kit User Guide \(FPGA-UG-02015\)](#)
- [ECP5 VIP Processing Board \(FPGA-EB-02001\)](#)

## Technical Support Assistance

Submit a technical support case through [www.latticesemi.com/techsupport](http://www.latticesemi.com/techsupport).

## Appendix A. USB3-GbE VIP I/O Board DisplayPort Schematics





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## Appendix B. USB3-GbE VIP IO Board Bill of Materials

| Item | Reference                                                                                                                                 | Qty | Value                  | Comments | Part Number             | Manufacturer    | Description                                                                   |
|------|-------------------------------------------------------------------------------------------------------------------------------------------|-----|------------------------|----------|-------------------------|-----------------|-------------------------------------------------------------------------------|
| 1    | C1,C3,C34                                                                                                                                 | 3   | 1uF                    | —        | CGA3E3X5R1E105M080 AB   | TDK Corporation | Cap 1uF 25V ±20% 0603 (1608 Metric) Thickness 1mm SMD                         |
| 2    | C2,C4,C10,C16,C24,C35,C44,C45,C48,C49,C51,C52,C62,C64,C68                                                                                 | 15  | 10uF                   | —        | GRJ155R60J106ME11D      | Murata          | Cap 10uF 6.3V ±20% 0402 (1005 Metric) Thickness 0.6mm SMD                     |
| 3    | C5,C6,C14,C15,C21,C22,C23,C30,C31,C32,C33,C36,C38,C40,C41,C43,C46,C47,C50,C53,C54,C55,C56,C61,C63,C65,C69,C71,C72,C73,C74,C75,C78,C80,C81 | 35  | 100nF                  | —        | C0402C104M9PACTU        | Kemet           | Cap 100nF 6.3V ±20% 0402 (1005 Metric) Thickness 0.6mm SMD                    |
| 4    | C7,C12,C13,C18,C19,C20,C26,C27,C28,C29,C76,C82                                                                                            | 12  | 1uF                    | —        | GRM152R60J105ME15 D     | Murata          | CAP 1uF 6.3V ±20% 0402 (1005 Metric) Thickness 0.6mm SMD                      |
| 5    | C8,C9                                                                                                                                     | 2   | 27pF                   | —        | GRM1555C1H270GA01 D     | Murata          | Cap 27pF 10V ±2% 0402 (1005 Metric) Thickness 0.6mm SMD                       |
| 6    | C11,C17,C25,C57,C58,C59,C60,C66,C67,C70                                                                                                   | 10  | 10nF                   | —        | GRM155R60J103KA01D      | Murata          | Cap 10nF 6.3V ±10% 0402 (1005 Metric) Thickness 0.6mm SMD                     |
| 7    | C37,C39,C42,C77,C79                                                                                                                       | 5   | 4.7uF                  | —        | GRM153R60J475ME15 D     | Murata          | Cap 4.7uF 6.3V ±20% 0402 (1005 Metric) Thickness 0.6mm SMD                    |
| 8    | D1,D2,D3,D5,D8                                                                                                                            | 5   | APG1005CGC-T           | —        | APG1005CGC-T            | Kingbright      | LED GREEN CLEAR 0402 SMD                                                      |
| 9    | D4                                                                                                                                        | 1   | APHHS1005SYCK          | —        | APHHS1005SYCK           | Kingbright      | LED YELLOW CLEAR 0402 SMD                                                     |
| 10   | D6,D7                                                                                                                                     | 2   | APHHS1005LQBC/D-V      | —        | APHHS1005LQBC/D-V       | Kingbright      | LED BLUE CLEAR SMD                                                            |
| 11   | H1,H2,H3,H4                                                                                                                               | 4   | M HOLE                 | DNL      | —                       | —               | Hole M3 -No component mounted                                                 |
| 12   | J1,J2                                                                                                                                     | 2   | ERM5-030-050-L-DV-K-TR | —        | ERM5-030-05.0-L-DV-K-TR | Samtec Inc      | Conn High Speed Edge Rate Terminal Strip HDR 60 POS 0.5mm Solder ST SMD T/R - |
| 13   | J3                                                                                                                                        | 1   | 7498111001             | —        | 7498111001              | Wurth           | CONN MAGJACK 1PORT 1000 BASE-T                                                |
| 14   | J4                                                                                                                                        | 1   | GSB443133HR            | —        | GSB443133HR             | Amphenol        | USB3.1 MICRO B R/A SMT 30U                                                    |

| Item | Reference                                   | Qty | Value            | Comments               | Part Number      | Manufacturer     | Description                            |
|------|---------------------------------------------|-----|------------------|------------------------|------------------|------------------|----------------------------------------|
| 15   | J5                                          | 1   | 67503-1020       | —                      | 67503-1020       | Molex            | CONN RECEPT MINIUSB R/A 5POS SMD       |
| 16   | L1,L2,L3,L4,L5,L6,L7,L8,L9,L10,L11          | 11  | MPZ2012S601AT000 | —                      | MPZ2012S601AT000 | TDK              | FERRITE BEAD 600 OHM 0805 1LN          |
| 17   | M1,M2,M3,M4                                 | 4   | MIRE             | DNL                    | —                | —                | Assembly target -No component mounted  |
| 18   | P2,P3,P4,P5                                 | 4   | HDR1X3           | Regular 100 Mil Header | —                | —                | Header, 3-Pin                          |
| 19   | Q1,Q2                                       | 2   | MMBT2222LT1G     | —                      | MMBT2222LT1G     | ON Semiconductor | TRANS NPN 30V 0.6A SOT23               |
| 20   | R1                                          | 1   | 2K Ohm           | —                      | RC0402FR-072KL   | Yageo            | 2K 0.063W 1% 0402 (1005 Metric) SMD    |
| 21   | R2                                          | 1   | 1k Ohm           | —                      | RC0402FR-071KL   | Yageo            | 1K 0.063W 1% 0402 (1005 Metric) SMD    |
| 22   | R3,R22,R31,R32,R35,R51                      | 6   | 10K Ohm          | —                      | RC0402JR-0710KL  | Yageo            | 10K 0.063W 5% 0402 (1005 Metric) SMD   |
| 23   | R4                                          | 1   | 120K Ohm         | —                      | RC0402FR-07120KL | Yageo            | 120K 0.063W 1% 0402 (1005 Metric) SMD  |
| 24   | R5                                          | 1   | 499K Ohm         | —                      | RC0402FR-07499KL | Yageo            | 499K 0.063W 1% 0402 (1005 Metric) SMD  |
| 25   | R6,R15,R20,R28                              | 4   | 402 Ohm          | —                      | RC0402FR-07402RL | Yageo            | 402R 0.063W 1% 0402 (1005 Metric) SMD  |
| 26   | R7                                          | 1   | 11K Ohm          | —                      | RC0402FR-0711KL  | Yageo            | 11K 0.063W 1% 0402 (1005 Metric) SMD   |
| 27   | R8                                          | 1   | 5.76K Ohm        | —                      | RC0402FR-075K76L | Yageo            | 5.76K 0.063W 1% 0402 (1005 Metric) SMD |
| 28   | R9                                          | 1   | 2.49K Ohm        | —                      | RC0402FR-072K49L | Yageo            | 2.49K 0.063W 1% 0402 (1005 Metric) SMD |
| 29   | R10,R52                                     | 2   | 22 Ohm           | —                      | RC0402FR-0722RL  | Yageo            | 22R 0.063W 1% 0402 (1005 Metric) SMD   |
| 30   | R11,R16,R23,R24,R26,R29,R30,R40,R41,R45,R48 | 11  | 4.7K Ohm         | —                      | RC0402FR-074K7L  | Yageo            | 4K7 0.063W 1% 0402 (1005 Metric) SMD   |
| 31   | R12,R13,R14,R21                             | 4   | 560 Ohm          | —                      | RC0402FR-07560RL | Yageo            | 560R 0.063W 1% 0402 (1005 Metric) SMD  |

| Item | Reference                                                | Qty | Value     | Comments | Part Number          | Manufacturer      | Description                              |
|------|----------------------------------------------------------|-----|-----------|----------|----------------------|-------------------|------------------------------------------|
| 32   | R17                                                      | 1   | 1M Ohm    | —        | RC0402FR-071ML       | Yageo             | 1M 0.063W 1% 0402 (1005 Metric) SMD      |
| 33   | R18                                                      | 1   | 2.2K Ohm  | —        | RC0402FR-072K2L      | Yageo             | 2.2K 0.063W 1% 0402 (1005 Metric) SMD    |
| 34   | R19                                                      | 1   | 110K Ohm  | —        | RC0402FR-07110KL     | Yageo             | 110K 0.063W 1% 0402 (1005 Metric) SMD    |
| 35   | R25                                                      | 1   | 4.7K Ohm  | DNL      | RC0402FR-074K7L      | Yageo             | 4K7 0.063W 1% 0402 (1005 Metric) SMD     |
| 36   | R27                                                      | 1   | 10K Ohm   | DNL      | RC0402JR-0710KL      | Yageo             | 10K 0.063W 5% 0402 (1005 Metric) SMD     |
| 37   | R33                                                      | 1   | 6.04K Ohm | —        | RC0402FR-076K04L     | Yageo             | 6.04K 0.063W 1% 0402 (1005 Metric) SMD   |
| 38   | R34                                                      | 1   | 200 Ohm   | —        | RC0402JR-07200RL     | Yageo             | 200R 0.063W 5% 0402 (1005 Metric) SMD    |
| 39   | R36,R37,R38,R39,R42,R43,R44                              | 7   | 0 Ohm     | DNL      | RC0402JR-070RP       | Yageo             | 0 0.063W 1% 0402 (1005 Metric) SMD       |
| 40   | R46                                                      | 1   | 0 Ohm     | —        | RC0402JR-070RP       | Yageo             | 0 0.063W 1% 0402 (1005 Metric) SMD       |
| 41   | R47,R50                                                  | 2   | 470       | —        | ERJ-2RKF4700X        | Panasonic         | RES SMD 470 OHM 1% 1/10W 0402            |
| 42   | R49                                                      | 1   | 100       | —        | CRCW0402100RFKED     | Vishay-Dale       | RES, 100, 1%, 0.063 W, 0402              |
| 43   | SW1,SW2                                                  | 2   | SWPB      | —        | 434153017835         | Wurth             | Switch PB SPST-NO 0.05A 12V              |
| 44   | TP1,TP2,TP3,TP4,TP5,TP6,TP7,TP8,TP12,TP13,TP21,TP22,TP23 | 13  | TP        | DNL      | 5003                 | Keystone          | Test Point, Orange, 1-Pin THD, RoHS      |
| 45   | U1,U2,U4                                                 | 3   | LT3085    | —        | LT3085EDCB#TRMPBF    | Linear Technology | IC REG LDO ADJ 0.5A 6DFN                 |
| 46   | U3                                                       | 1   | DP83867   | —        | DP83867IRPAPR        | Texas Instruments | IC ETHERNET PHY 64HTQFP                  |
| 47   | U5                                                       | 1   | CYUSB3014 | —        | CYUSB3014-BZXI       | Cypress           | IC ARM9 USB CONTROLLER 121FBGA           |
| 48   | U6                                                       | 1   | OSC_19M2  | —        | KC5032A19.2000CM0E00 | Kyocera           | Oscillator 19.2MHz - 5x3.2mm package     |
| 49   | U7                                                       | 1   | OSC_32768 | —        | ECS-327KE-TR         | ECS               | Oscillator 32.768KHz - 3.2x2.5mm package |

| Item | Reference                         | Qty | Value        | Comments | Part Number          | Manufacturer       | Description                   |
|------|-----------------------------------|-----|--------------|----------|----------------------|--------------------|-------------------------------|
| 50   | U8,U10,U12                        | 3   | SP3010-04UTG | —        | SP3010-04UTG         | Littelfuse         | TVS DIODE 6V 12.3V 10UDFN     |
| 51   | U9                                | 1   | CY7C65215    | —        | CY7C65215-32LTXI     | Cypress            | IC USB TO SERIAL BRIDGE 32QFN |
| 52   | U11                               | 1   | M24M02       | —        | M24M02-DRMN6TP       | STMicroelectronics | IC EEPROM 2MBIT 1MHZ 8SO      |
| 53   | U13                               | 1   | AT24MAC402   | —        | AT24MAC402-SSHM      | Microchip          | IC EEPROM 2KBIT 1MHZ 8SOIC    |
| 54   | Y1                                | 1   | ABM3-25      | —        | ABM3-25.000MHZ-D2Y-T | Abracon            | CRYSTAL 25.0000MHZ 18PF SMD   |
| 55   | USB3-GbE VIP IO BOARD<br>REVB PCB | 1   | —            | —        | 305-PD-18-0242       | PACTRON            | —                             |

## Revision History

| Date     | Version | Change Summary   |
|----------|---------|------------------|
| May 2018 | 1.0     | Initial release. |



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