

Arria V GX Transceiver Starter Kit

from *Altera*

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The Altera® Arria® V GX Transceiver Starter Kit provides a complete design environment that includes all the hardware and software you need to develop cost-sensitive FPGA applications immediately. The development kit is RoHS compliant. The development kit features the following:

- Arria V GX FPGA—360KLE, F1517 package, 24X6.6G XCVRs, C4 speed grade
- One I/O expansion slots—one high-speed mezzanine card (HSMC)
- 16 MB of SDRAM memory
- High-definition multimedia interface (HDMI) and serial digital interface (SDI) connections
- SMAs

Ordering Information

| Table 1. Arria V GX Transceiver Starter Kit Ordering Code and Pricing Information | | |
|---|-------|---|
| Ordering Code | Price | Ordering Information |
| DK-START-5AGXB3NES | | <p>The Arria V GX Transceiver Starter Kit features a 5AGXB3 Engineering Sample (ES) device and a 1-year license for the Quartus® II design software.</p> <p>Contact your local Altera distributor to place your order.</p> |

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Transceiver Starter Kit Contents

- The Arria V GX Transceiver Starter Kit features the following:
 - Arria V GX FPGA development board (see Figure 1)
 - FPGA: Arria V GX 5AGXFB3H4F35C4NES
 - System controller: MAX® V 5M2210ZF256C4N
 - Power monitor GUI
 - Single analog-to-digital converter (ADC), eight channels
 - Non-isolated power rail
 - Fast passive parallel (FPP) x16 mode through parallel flash loader (PFL)
 - Control and status registers
 - Embedded USB-Blaster™ II: MAX II EPM570GM100C4N
 - HDMI 1.3 TX
 - x4 XCVR, 3.4 Gbps (max by spec) and 340 MHz TX clock (by spec)
 - HDMI TX connector
 - TI HDMI level shifter SN75DP130
 - Level shift XCVR PCML 1.5V <-> TMDS level
 - DDC and HPD <-> HDMI compliant level
 - Data channel up to 5.4 Gbps; HDMI 1.3 only needs a maximum of 3.4 Gbps
 - Clock channel up to 340 MHz; enough to support 3.4 Gbps data rate
 - HDMI specification: clock period = 10x of UI
 - Requires 100 MHz clock input at CLKIN to generate the TX clk and core logic
 - SDI 3G
 - x1 XCVR TX/RX loopback
 - x2 SMB connectors and cable (cable not included in kit)

- Up to 2.97 Gbps
- Uses National Semiconductor driver/receiver LMH0384SQ/LMH0303SQx
- Requires 148.5 MHz and 148.35 MHz at XCVR refclk to support US and EU standard respectively
- Use VCXO to fine tune and lock to the recovered CDR frequency
- Requires 125 MHz CLKIN for core logic
- HSMC
 - x8 XCVR up to 6.375 Gbps
 - Not complied to PCI Express® (PCIe®) HIP pin assignment
 - x4 CMOS
 - x17 differential using dedicated TX/RX channel
 - x2 low-voltage differential signalling (LVDS) clock in
 - x2 differential clock out
 - I2C
 - JTAG
 - Minimum current support
 - 2A @ 3.3V
 - 1A @ 12V
 - Dedicated clock domain from Si 5338 clock generator for xcvr refclk
 - HSMC loopback with BTS GUI
- SMA
 - 7x XCVR TX/RX channel
 - 1x LVDS clock input
- Dedicated clock domain from Si 5338 clock generator for xcvr refclk
- DDR3 SDRAM x32
 - Micron MT41J64M16JT-15E DDR3 SDRAM 8MX16X8
 - Two devices: 2 x16 width = x32
 - BTS DDR3 SDRAM GUI using Uniphy and high performance (HP) controller II
- SSRAM
 - 1024k x18, 18 Mb ISSI IS61VPS102418A
 - Shared address or data with flash
- User IO
 - LCD character
 - x4 DIP switch
 - x3 PB
 - x4 LED
- Configuration
 - FPP x16 mode
 - Dual flash 512Mbit Numonyx PC28F512P30BF (52 MHz F_{MAX})
- JTAG header
- Embedded USB Blaster II
 - Cypress Microcontroller CY7C68013A as USB PHY 2.0
 - MAX II
 - Ethernet
 - 10/100/1000 Base-T
 - RJ-45 connector, on-board LED for link status
 - Marvell Ethernet PHY 88E1111
 - Requires 100 MHz and 125 MHz clock from CLKIN

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Figure 1: Arria V GX Starter Board with a 5AGXB3ES FPGA Device

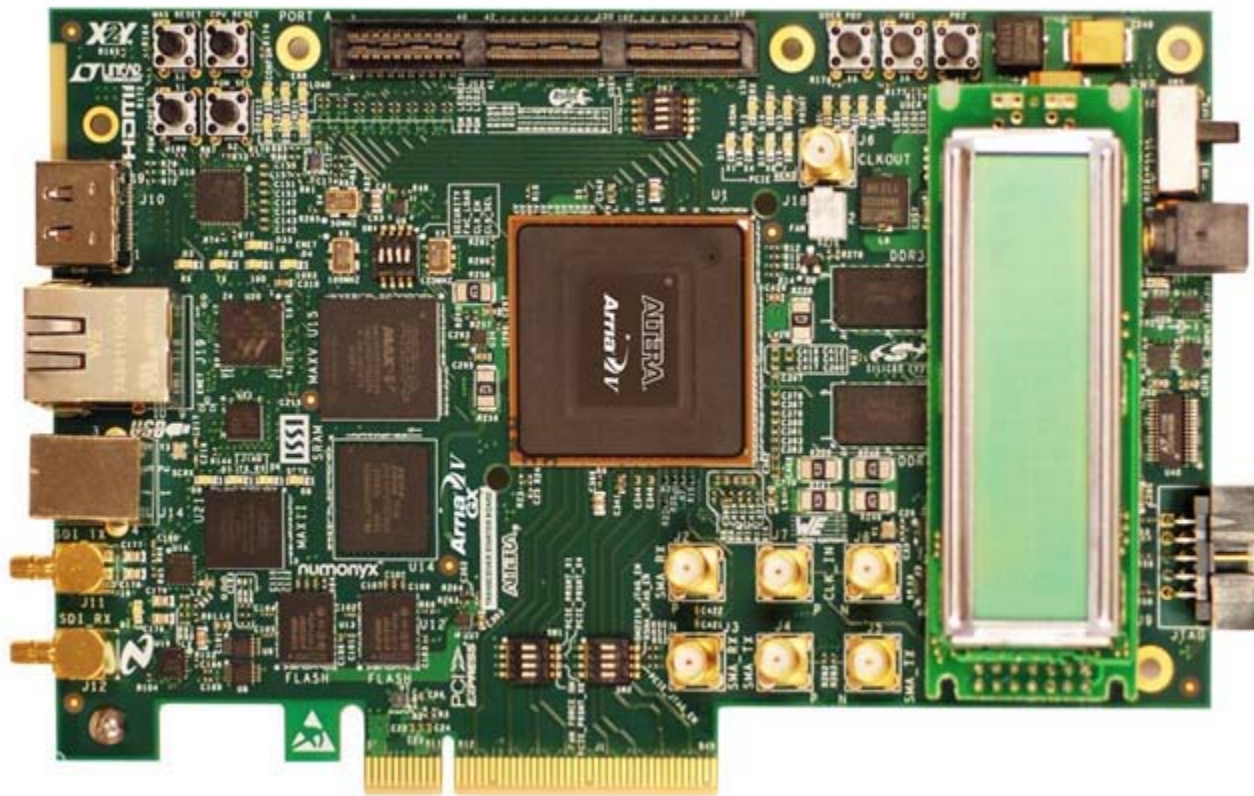
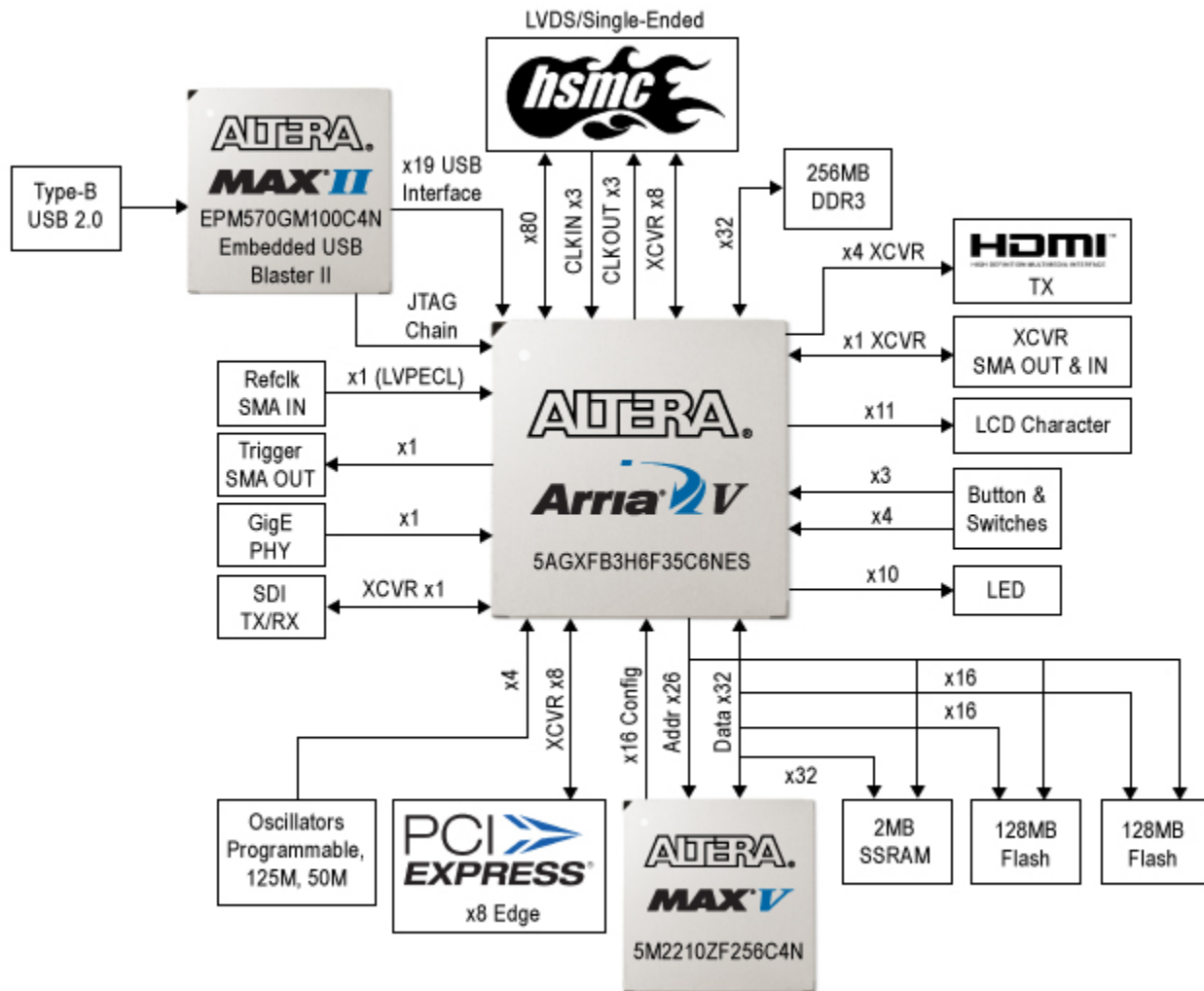


Figure 2: Arria V GX Starter Board Block Diagram



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Related Links

- [Arria V FPGA documentation page](#)
- [Errata Sheet and Guidelines for Arria V ES Devices \(PDF\)](#)
- [Altera and partner daughter cards](#)
- [Other Arria V FPGA-based development kits](#)
- [Jungo PCI Express WinDriver \(30-day evaluation\)](#)