Extensible FPGA Framework (EFW)
For HiTech Global HTG-K7-PCIe Kintex-7 PCIE FPGA Module

Key Framework Features

- Integrated, hardware verified solutions for 1G/10G Ethernet development
- HTG-K7-PCIe module targeted system building blocks of DMA Controllers, Ethernet MAC and PCS, PCIE application interface, AXI4 Interconnect, DDR3 and Flash Memory controllers
- Frameworks bundled with:
  - ***All Options:*** x8 PCIe Gen2 PCIe application interface, AXI4-Lite master/arbiter for memory mapped interface, Field Upgradeable (FUp) controller for in-system Flash programming and I2C controller
  - ***Ethernet Options:*** Synthesizable binaries and full simulation libraries GiGE, Low Latency 10G or Ultra-Low Latency 10G Ethernet solution
- Linux source code device drivers and APIs for PCIe interface and DMA controller
- Unified GUI (Binary) for the entire EFW with scripting support
- Lowest startup cost for developing complete 1G and 10G solutions with Kintex-7 FPGA
- Simplified, single-sourced licensing for all FPGA IP cores and drivers

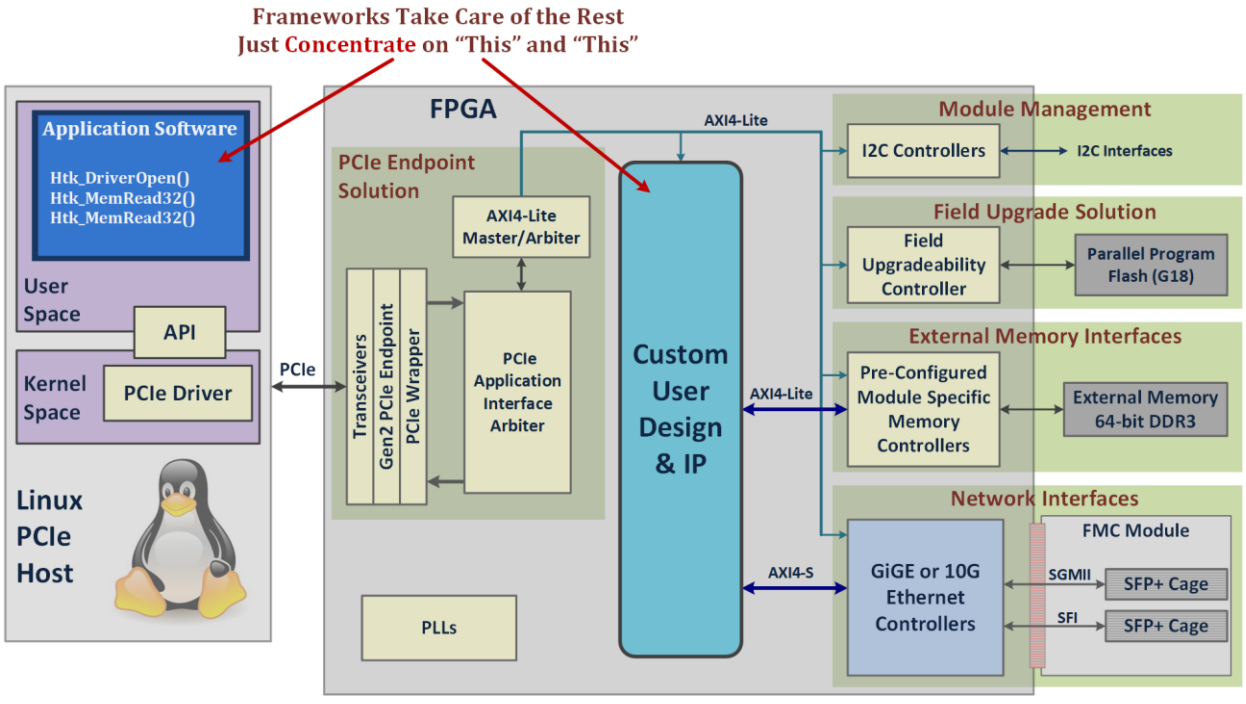
QUICKEST AND HIGHLY AFFORDABLE 1G AND 10G ETHERNET DEVELOPMENT WITH HTG-K7-PCIE MODULE

Extensible FPGA Framework (EFW) empowers FPGA developers with a verified set of productivity solutions, including module targeted physical interface components, device drivers and APIs for the HiTech Global HTG-K7-PCIE module.

Frameworks save months of development and debug time by enabling developers to skip the tedious and time-consuming phase of IP core integration, interface verification and firmware development.

Framework Bundled Content	*Framework Type*			*Required FMC Module*
	Base	*1G*	*10G*	
Linux Device Drivers and APIs (Source)	●	●	●	-
x8 Gen2 PCIe hard IP based PCIe Endpoint Wrapper (Verilog)	●	●	●	-
PCIe Thin Client for Memory Mapped Access (Netlist)	●	●	●	-
AXI4-Lite Master and Arbiter with 32-bit control plane for registers accesses (Verilog)	●	●	●	-
32-bit AXI4-Lite Slave for integrating user blocks (Verilog)	●	●	●	-
G18 Flash controller for in-system field upgrades (FuP) (Netlist)	●	●	●	-
I2C Controller (Netlist)	●	●	●	-
SPI Controller (Netlist)	●	●	●	-
Targeted, hardware verified DDR3 controllers with AXI4 wrapper (Verilog)	●	●	●	-
GiGE MAC with 1000Base-X Interface (Netlist)		●		FMC-X4SFP+
Low and Ultra-Low Latency 10G Ethernet option (Netlist) ***Latency optimized for financial market applications***			●	FMC-X4SFP+ FMC-SFP-OC FMC-X2QSFP+

** GiGE and 10G UDP/IP Offload Engine (UOE) IP cores also available*



Productivity Features

PCIe Bus Interface and Management: Complete PCIe endpoint solution for the HTG-K7-PCIE with x8 Gen2 PCIe interface. Framework implements a 32-bit AXI4-Lite compliant register access interface for Non-DMA (single read/write) operations.

Parameterized AXI4-Lite Inter-connect: Complete, fully parameterized 32-bit AXI4-Lite inter-connect with Master, Arbiter and Slave in source (Verilog) code for register access.

Ethernet Solutions for GiGE and 10Gbps: HTG-K7-PCIE targeted and fully verified Ethernet interfaces using GiGE, Low Latency or Ultra-Low Latency 10Gbps Ethernet solutions. Exemplary Ethernet designs using Hitech Global HTG-FMC-X4SFP FMC module. Basic L2 packet generators and checkers (netlist) included for quick interface verification through GUI interface. GiGE and 10Gbps UDP/IP Offload Engine (UOE) IP cores also available for hardware protocol acceleration.

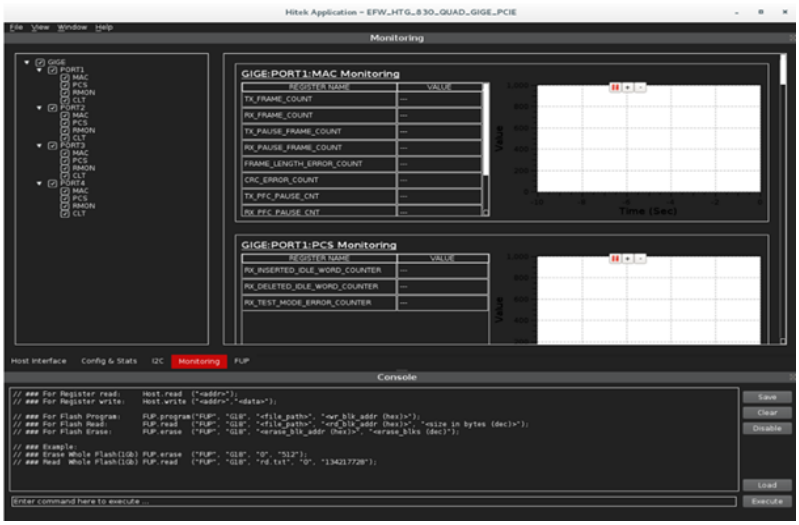
BPI Flash Upgrade through PCIe: Program and erase the parallel Flash memory on the HTG-K7-PCIE through the PCIe interface at very high speeds. Integrating the FUp controller allows any user design to be field upgradable through PCIe.

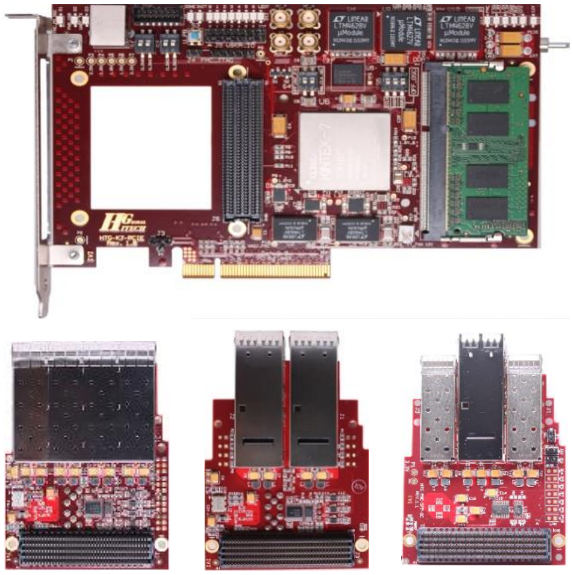
I2C and SPI Controllers: Flexible I2C and SPI controllers with AXI4-Lite host interface for peripheral device management.

Device Drivers: 64-bit Linux device drivers in source code for register access and interrupts.

APIs: C (source code) language function libraries and example test for register access and interrupts in source code.

GUI Interface: GUI application (Linux, Binary only) for control and configuration of all EFW components.





Links to IP Core and Module Resources

- 10G Low Latency Ethernet IP: http://www.hitechglobal.com/IPCores/10GigEMAC.htm
- 10G Ultra-Low Latency Ethernet IP: http://www.hitechglobal.com/IPCores/

For more information:

Phone: +1-408-781-8043

Email: info@hitechglobal.com

Product Ordering Codes

Base (No Ethernet/DMA):	**HTK-EFW-K7-PCIe-Base**
GiGe Ethernet:	**HTK-EFW-K7-PCIe-1G**
Low Latency 10G Ethernet:	**HTK-EFW-K7-PCIe-10G**
Ultra-Low Latency 10G:	**HTK-EFW-K7-PCIe-10GU**