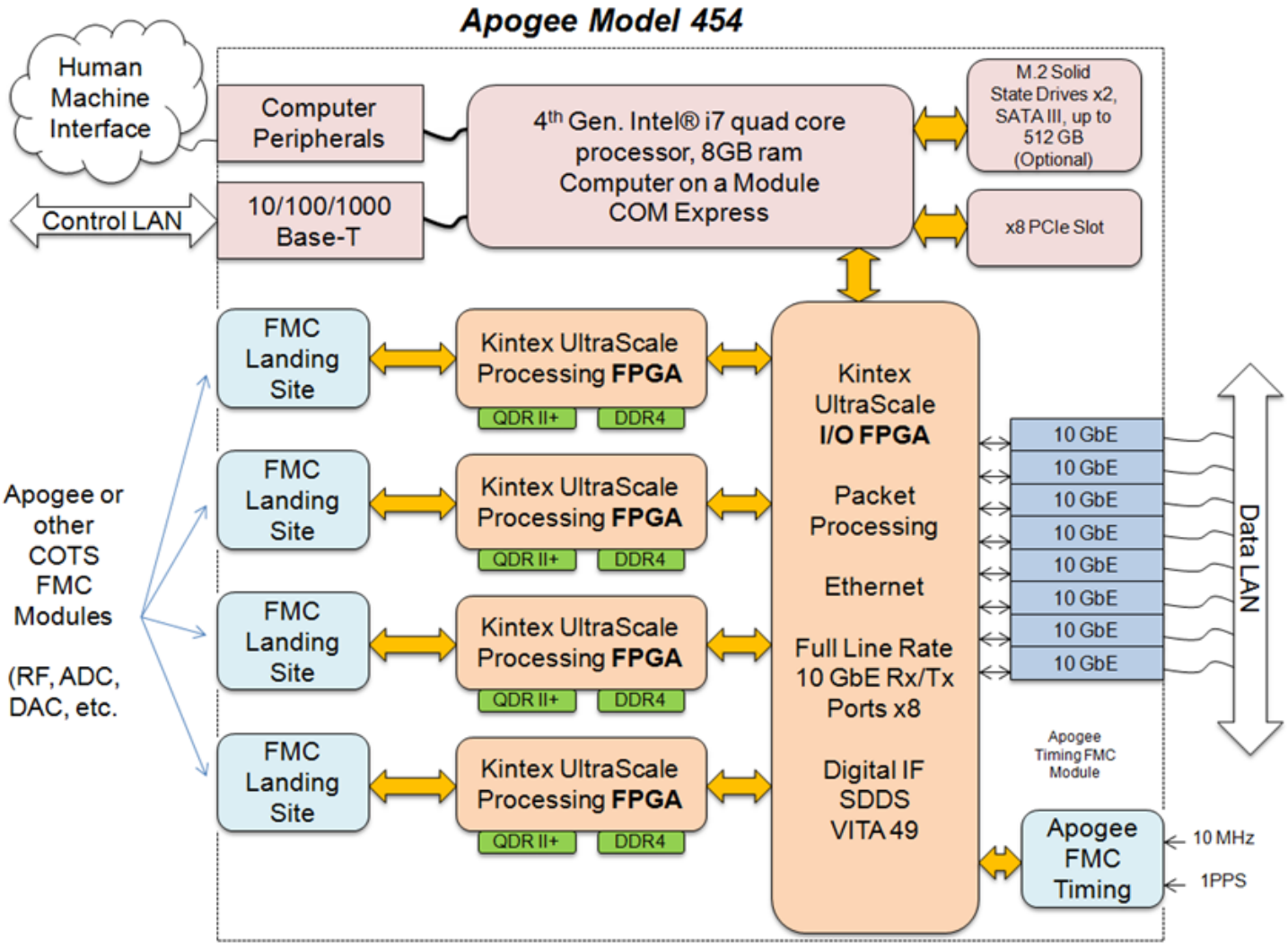
Model 454
FPGA Server

- Software Defined Radio
- Digital IF Processing
- Digital Signals Processing
- 3rd Party Developers
- RF / Mixed-Signal
- Network Data Processing
- FMC IO Expansion Slots

A High Performance Mixed-Signal Network Appliance

The Model 454 is an extremely high throughput mixed-signal and network based FPGA processing unit. The unit can be populated with up to four industry standard FPGA Mezzanine Cards (FMC) and has four of the latest generation Xilinx Kintex Ultrascale FPGAs populated on the main board. Processed data is routed to the Ultrascale I/O FPGA where it is packetized into Digital IF and sent out one or more of the units 10 Gigabit SFP+ ports. The unit can also ingest network data, apply advanced Digital Signal Processing algorithms in the FPGAs, and return the processed data back to the network. The Model 454 can also receive timing information and apply it across the DSP applications that require precise timestamps or other types of data correlation. Command and control is via a dedicated 10/100/1000 Base-T command and control port. Apogee provides a full software ICD with each application that is delivered.



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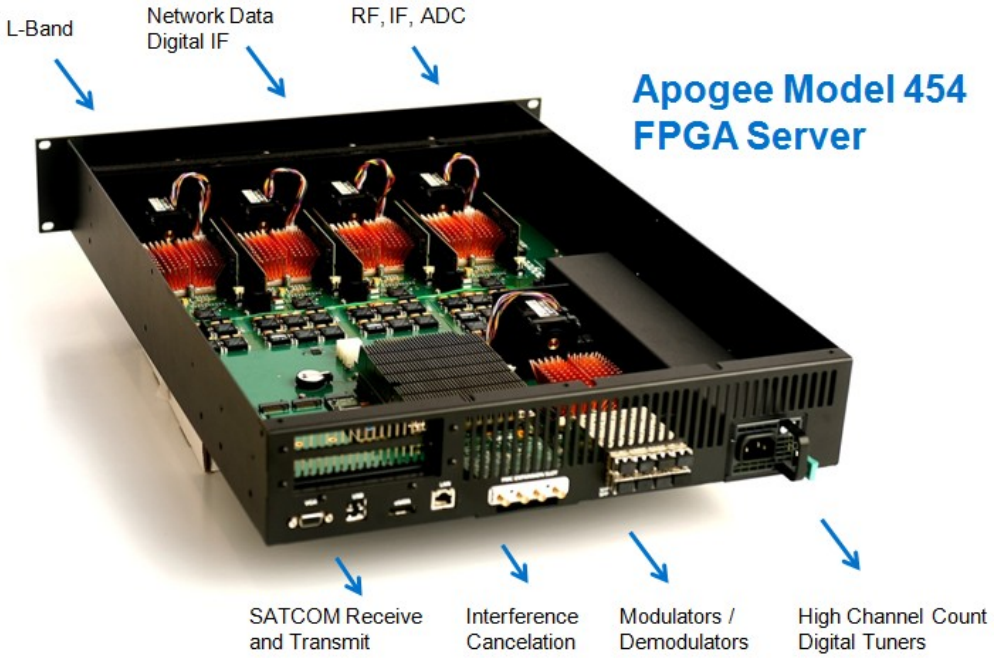
Model 454 Application Examples



Model 454 Key Specifications

User FPGAs	x4, Xilinx Kintex Ultrascale p/n XCKU115-2FLVF1924
Per FPGA DDR Memory	x1, 8GB DDR4 Memory Module (upgradeable to x2 8GB DDR4 modules)
Per FPGA QDR Memory	x2, 72-Mbit QDR® II+ SRAM Four-Word Burst (upgradable to four memories per FPGA)
	QDR's can also be upgraded in size to 144-Mbit, for a total of 576-Mbit per FPGA
Computer on a Module (COM Express)	4th Gen. Intel® i7 quad core, 8GB RAM
FMC Landing Sites	x4, ANSI/ VITA 57.1 FPGA Mezzanine Card (FMC), High Pin Count (HPC)
10 Gigabit I/O	x8 bidirectional ports (SFP+), full line rate, Ethernet-MAC-UDP-IP (optional TCP/IP)
	Supports up 512 independent Multi-cast Sessions per port.
Solid State Drives (optional)	x3, M.2 SATA III, up to 512 GB per drive, (1) Operating System, Optional (2) for user data
PCIe	x1, x8 PCIe slot with two GPU AUX power connectors
Timing (optional)	Dedicated 5th FMC landing site can be populated with Apogee FMC Timing Module
	(p/n FMC-T00) , 10 MHz and 1PPS Reference Input and Output ports
External Ports	10/100/1000 Base-T Control, eSATA, USB 2.0, VGA
3rd Party	Available 3rd Party Application Developers Kit
Built-In Self Test	Puts the unit in a looping test that verifies Memories, High Speed GT Interconnects, and
	SFP+ (when cables placed for loopback). Reports any errors to a log file.
Form Factor/Environmental	19" 2U rack mount (24" depth), 0-35C Operating, Humidity 5%—90% Non-condensing
Power	90—264 VAC, 47—63 Hz, Power Factor Corrected