



# Hardware Accelerated Computing SC5 SuperCluster

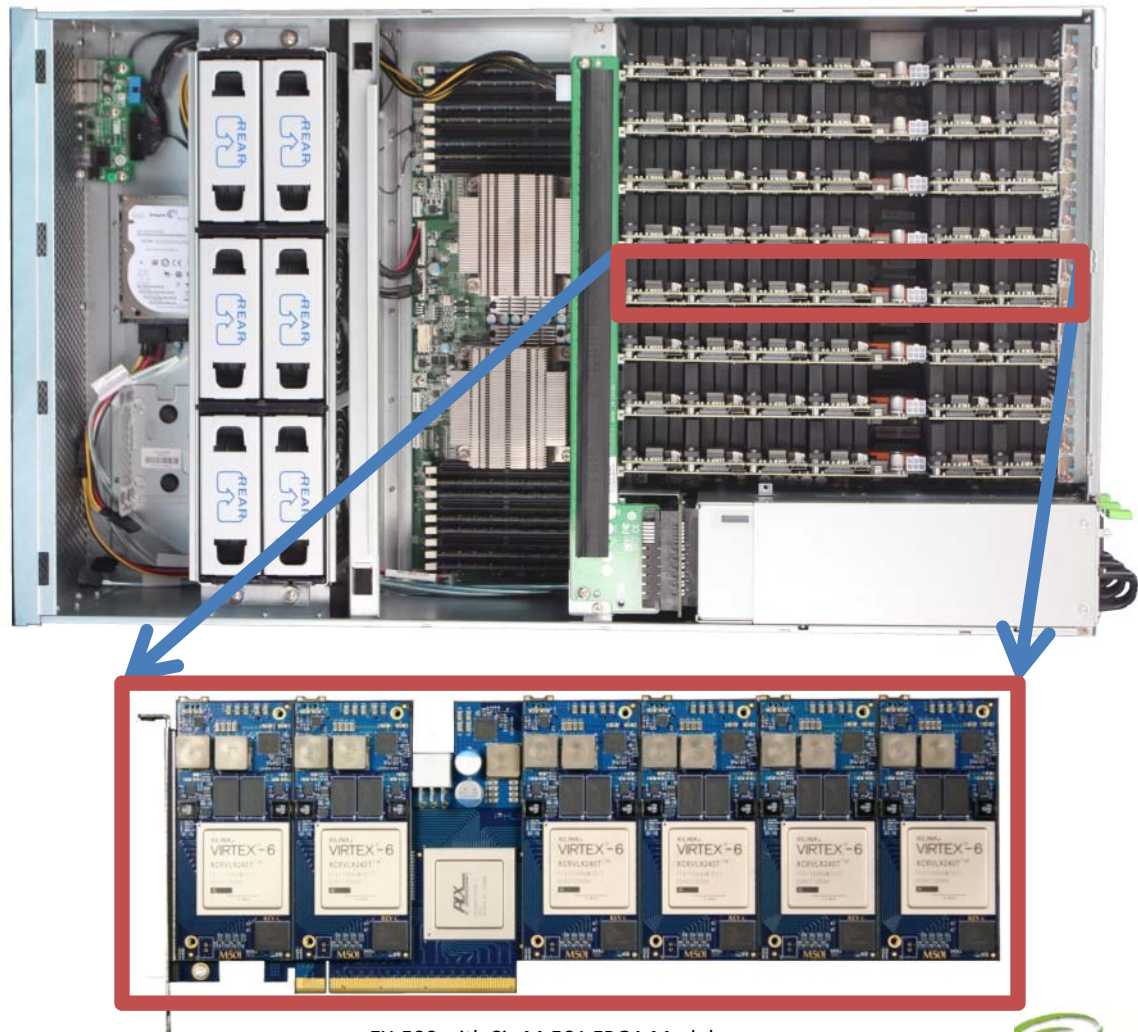
# SC5 SuperCluster

## SC5 FPGA Cluster Overview:

- Up to 48 Xilinx Kintex-7 FPGAs
- Up to 48 Xilinx Virtex-6 FPGAs
- Up to 19.5 Million Logic Cells
- Up to 192GB DDR3 local FPGA memory

## Base System Specifications:

- Dual Intel Quad Core Xeon CPUs
- Up to 144GB ECC REG RAM
- 8 PCIe x16 Gen2 Slots (x8 Gen2 Electrically)
- 2 x Hard Drive
- 2 x 3 120mm Fans
- Linux (Ubuntu)
- 3600Watt N+1 PSU



EX-500 with Six M-501 FPGA Modules

# SC5 SuperCluster Options

| SC SuperCluster                      |                 |                              |                |
|--------------------------------------|-----------------|------------------------------|----------------|
|                                      | SC5/501-48      | SC5/503-24                   | SC5/505-48     |
| Type of Modules                      | M-501           | M-503                        | M-505          |
| Max # of Modules                     | 48              | 24                           | 48             |
| FPGAs per Module                     | 1               | 1                            | 1              |
| Type of FPGA (other FPGAs available) | Virtex-6 LX240T | Virtex-6 LX240T              | Kintex-7 K325T |
| Bandwidth to Host                    | x8 Gen2 PCIe    | x8 Gen2 PCIe                 | x8 Gen2 PCIe   |
| Total # of FPGAs per Cluster         | 48              | 24                           | 48             |
| Total # of Logic Cells per Cluster   | 11,575,296      | 5,787,648                    | 15,651,840     |
| Total Local FPGA Memory              | 24.5GB          | 192GB                        | 192GB          |
| Chassis                              | 4U              | 4U                           | 4U             |
| Card/Module Resources                |                 |                              |                |
| Logic Cells per FPGA                 | 241,152         | 241,152                      | 326,080        |
| Memory (RAM) per FPGA                | 256MB DDR3      | 2 x 4GB DDR3<br>3 x 9MB SRAM | 4GB DDR3       |
| Block RAM per FPGA                   | 14,976          | 14,976                       | 16,020         |
| DSP Slices per FPGA                  | 640             | 640                          | 840            |

# SC5 SuperCluster

## Chassis

|              |  |
|--------------|--|
| Form Factor  | 4U Rackmount                                 |
| Dimensions   | 6.9" x 17.24" x 30.31'<br>176 x 438 x 770 mm |
| Gross Weight | 120 lbs / 54 kg (max)                        |

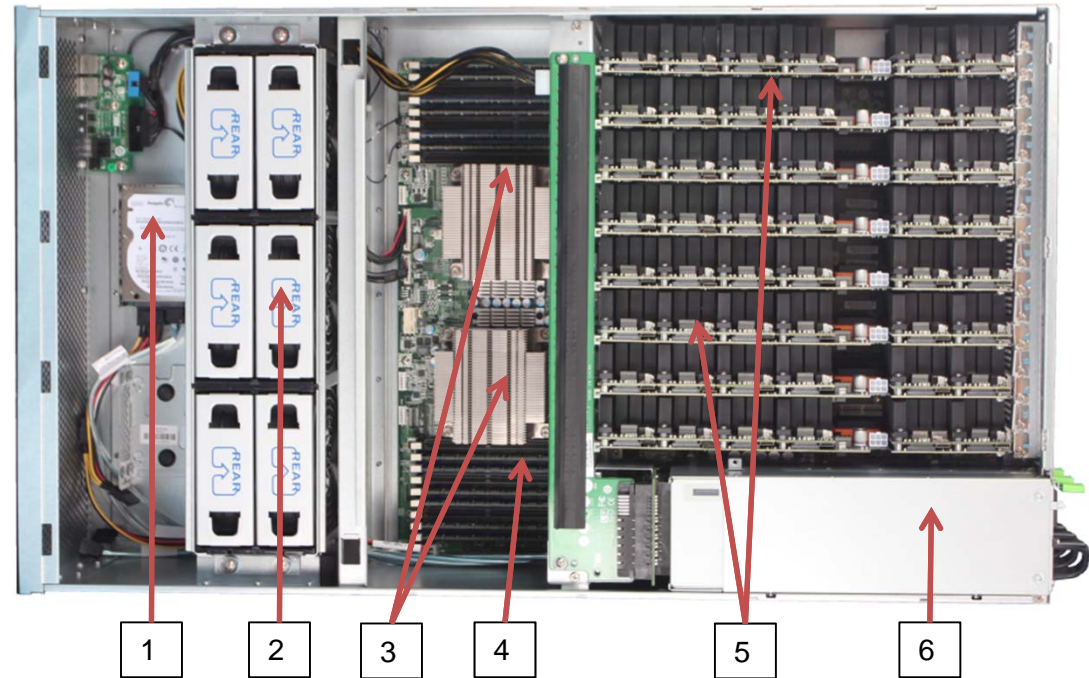
## Power Supply

|           |  |
|-----------|--|
| Type      | ERP1U hot-swap (2+1)                         |
| Input     | AC 100-240V                                  |
| Frequency | 47-63 Hertz                                  |
| Output    | 3,600 W Max @ 220Vac<br>Efficiency PFC / 80+ |

|           |                                       |
|-----------|---------------------------------------|
| Processor | Intel Xeon 5500/5600<br>LGA 1366      |
| DIMM qty  | (9+9) DIMM Slots<br>Up to 144GB RDIMM |

|     |                  |
|-----|------------------|
| LAN | 4 - Intel 82574L |
|-----|------------------|

|      |  |
|------|--|
| IPMI | AST2050<br>IPMI 2.0<br>USB 2.0 virtual hub |
|------|--|



|   |                                     |   |                                |
|---|-------------------------------------|---|--------------------------------|
| 1 | Hard Drive: 4 x 2.5" or 2 x 3.5"    | 4 | Host System Memory: up to 96GB |
| 2 | Two Banks of 3 x 120mm Cooling Fans | 5 | FPGA Modules: 48 M-501s shown  |
| 3 | Host CPU: Quad Core Xeon            | 6 | Three 1200W N+1 PSU            |