

# ELM Upgrade (Feb 2014)

Criteria	ELM	NEW	Notes
Chassis	IBM System x3650 M3	IBM System x3650 M4	
CPU	2x Intel Xeon X5680 6c 3.33GHz 12MB	2x Intel Xeon E5-2697 v2 12c 2.7GHz 30MB	Double cores & threads
CINT2006 Result & Rate	Result: 41.8, Rate: 377	Result: 60, Rate: 966	2.5x
CFP2006 Result & Rate	Result: 48, Rate 255	Result: 102, Rate: 695	2.7x
RAM	120G, DDR3 ECC 1333MHz	256G ECC DDR3 1866MHz	2x RAM, Faster access
DISK Controller	ServeRAID M5015	ServeRAID M5210	
RAID Cache	Conventional Battery BBU	Flash	No battery cycling
Disks	16x 600GB 10K RPM 6Gbps 2.5" HDD (8T)	16x 900GB 10K RPM 6Gbps 2.5" HDD (12T)	50% more capacity
Disk Expansion	Full	8x 2.5" HS Bays	
Ethernet	2x 1GbE	4x 1GbE, 2x 10GbE	
Cost	~\$25,000 (actual price)	\$30,880 (IBM Web Price 11/4/2013)	will hit \$25,000 goal

## Details

### Current Configuration

- IBM System x3650 M3
- 2x Intel Xeon X5680 6c 3.33GHz
  - CINT2006: 41.9, CFP2006: 48, CINT2006 Rate: 377, CFP2006 Rate: 255
- 120G RAM (DDR3 ECC 1333MHz)
- RAID 6 Primary Array
  - 16x 600GB 10K RPM 6Gbps 2.5" HDD
  - 8.4T Usable

### Proposed Configuration

- IBM System x3650 M4
- 2x Intel Xeon E5-2697 v2 12c 2.7GHz 30MB Cache 1866MHz 130W
  - CINT2006: 60, CFP2006: 102, CINT2006 Rate: 966, CFP2006 Rate: 695
- 16x 16GB PC3-14900 CL13 ECC DDR3 1866MHz LP RDIMM (256G Total)
  - 8x (128G) is \$2760 less
- ServeRAID M5210-e SAS/SATA Controller
  - ServeRAID M5200 Series RAID 6 Upgrade
  - ServeRAID M5200 Series 2GB Flash/RAID 5 Upgrade
- RAID 6 Primary Array
  - Option 1:
    - 16x IBM 1TB 7.2K 6Gbps NL SAS 2.5" SFF HS HDD
    - 14T Usable
  - Option 2:
    - 16x IBM 900GB 10K 6Gbps SAS 2.5" SFF HS HDD
    - 12.6T Usable

- Intel X540 Dual Port 10GBase-T Embedded Adapter
- 2x 750W High Efficiency Platinum AC Power Supply
  - 2x 1.5m C13-C14 power cable
- Integrated Management Module
- Gen-III Slides Kit and Cable Management Arm
- x3650 M4 HD Plus 8 x 2.5" HS HDD With Expander
- Prices:
  - \$27,200 IBM Web price on 11/4/2013 for 1T Drives
  - \$30,880 IBM Web price on 11/4/2013 for 900G Drives