Pegasus

• Five Racks of iDataPlex in iDataPlex Racks
• One Standard Enterprise Rack for Networking and Management

iDataPlex dx360 M4:
  – Qty. (2) Intel SandyBridge E5-2670 (2.6 GHz)
  – 32 GB 1600MHz RAM (2GB/core)
  – Stateless/Diskless
  – Mellanox Connect X3 Single-Port FDR

• Mellanox FDR MSX6036
• DDN SFA 12k
  – Qty (120) 3TB 7.2K RPM SATA (RAID 6 in 8+2)
  – Qty (360) 600GB 15K SAS (RAID 6 in 8+2)
  – Qty (10)e 400GB MLC SSD (RAID 1 Pairs)

• xCAT 2.7.x
• Platform LSF
• RHEL 6.2 for Login/Management Nodes
University of Miami's Pegasus HPC System

Pegasus' CPU Workhorse – The IBM iDataPlex dx360M4

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<th>CPU Compute Nodes</th>
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Presented by IBM
University of Miami's Pegasus HPC System

Pegasus' GPGPU Workhorse – The IBM iDataPlex dx360M4

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- **2 Non-hot plug (3.5") HDD; Or 4 Non-hot plug (2.5") HDD or SSD; Or 8 Non-hot plug (1.8") SSD**
- **1 GPU Module FHFL 2x wide** Dedicated x16 Gen 3
- **1 GPU Module FHFL 2x wide** Dedicated x16 Gen 3

- PCIe x8 Slot (RAID, FC, InfiniBand, 10GbE...)
- Mezzanine Card Slot InfiniBand FDR, QDR, FDR10 or 10GbE
- PCIe x8 Slot (RAID, FC, InfiniBand, 10GbE...)
The Modularity of Pegasus – Node Level

iDataPlex Rack Side
(24) dx360 M4 Planers
(Max per switch in 1st Tier)

Management Rack (Main) Side
(6) Core Mellanox SX6036
(2nd Tier)

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The Modularity of Pegasus – Rack Level
Storage Modularity

DDN SFA 12k-20e

- **Embedded Virtualization Server**
- Qty (120) 3TB 7.2K RPM SATA (RAID 6 in 8+2)
- Qty (360) 600GB 15K SAS (RAID 6 in 8+2)
- Qty (10)e 400GB MLC SSD (RAID 1 Pairs)
- 16GB/sec throughput
The Heart of Pegasus

Main Rack

2\textsuperscript{nd} Tier (Core) SX6036 Switches

LSF Master Nodes

1\textsuperscript{st} Tier SX6036 Switch

BNT G8052 Core GbE Switch

Login Nodes

xCAT Management Node