**Current RHSSA 3.2 Configuration Guidelines**

**Standard Configuration Overview**

For the Red Hat SSA 3.2, hardware **must** be selected from the "Supported Dell, Supported HP, or Supported SuperMicro" list of models.  We will be updating and expanding this list as new models are qualified.  **Other configurations supported on an exception basis.**  On-site professional services required if non-standard config.  Please see comments below on specific components to avoid within supported platforms.

**Cluster Guidelines**:

* Minimum of 4 SSA nodes
* Max of 64 SSA nodes.  Larger configurations supportable, but require an exception
* Expectation is that initial cluster deployment will be of heterogeneous nodes (e.g.:  All General Purpose nodes with 3TB drives)
  + Configuration upgrades can support a mix of node sizes, such as adding node with 4TB drives to a cluster with 2TB drives, HOWEVER nodes much be added in pairs such that a node and it's replica are the same size.

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| **Component** | **HPC** | **General Purpose** | **Archival** |
| Chassis (only applicaple with SuperMicro) | 2u 24x2.5" Hotwap with redundant pwr | 2u 12x3.5" Hotwap with redundant pwr | 4u 36x3.5" Hotwap with redundant pwr |
| Processor | Dual Socket Hexacore Xeon | Dual Socket Hexacore Xeon | Dual Socket Hexacore Core Xeon |
| Disk | 24x 2.5" 15K RPM SAS | 12x 3.5" or 24x 2.5" SFF 6gb/s SAS | 36x 3.5" 3gb/s SATA II |
| minimum RAM | 48GB | 32GB | 16GB |
| Networking | 2x10GigE | 2x10GigE (preferred) or 2x1GigE | 2x10GigE (preferred) or 2x1GigE |
| Max # of JBOD attachments | 0 | 2 | 4 |
| Supported Dell Model | R510 | R510 | R510 |
| Supported HP Model | DL-180, DL-370, DL-380 | DL-180, DL-370, DL-380 | DL-180 |
|  |  |  |  |
| Supermicro Model / SKU (when available) |  |  |  |
|  |  |  |  |
| JBOD Support | NA | Dell MD-1200, HP D-2600, HP D-2700 | Dell MD-1200, HP D-2600, HP D-2700 |

**Notes:**

* All data disks configured in groups of 12 drives in RAID6 configuration
* Infiniband support on exception basis only

**Dell Supported Configurations**

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|  | **Recommended** | Supported | Unsupported | **Comments** |
| Chasis | * Redundant power configuration | R510, R710 | All other Dell models by exception only | server Intel® 5520 Chipset |
| Processor |  | Dual Six-core processors   * Intel® Xeon® X5690 - 3.46GHz * Intel® Xeon® X5680 - 3.33GHz * Intel® Xeon® X5675 - 3.06GHz * Intel® Xeon® X5660 - 2.80GHz * Intel® Xeon® X5650 - 2.66GHz * Intel® Xeon® E5649 - 2.53GHz * Intel® Xeon® E5645 - 2.40GHz * Intel® Xeon® L5640 - 2.26GHz   (also any faster versions of Six-core processors) | * Quad -core processors * Single socket configuratoins * AMD based servers | Intel® 5520 Chipset |
| Memory | 32GB | 24GB Min, 64GB Max |  |  |
| NIC |  |  |  |  |
| RAID |  | PERC 6/E SAS 1gb/512, PERC H800 1gb/512 [verify]. | Dell single channel ultra SCSI |  |
| System Disk |  | 2x200GB Min (mirrored) 7.2K or 10/15 |  |  |
| Data Disk |  |  | * SSD * SFF Drives (see HPC Config) |  |

**HP Supported Configurations**

**HP General Purpose Configuration**

Reference:

* [DL180 G6 Quickspec](http://h18004.www1.hp.com/products/quickspecs/13248_na/13248_na.html)
* [DL370 G7 Quickspec](http://h18004.www1.hp.com/products/quickspecs/13242_na/13242_na.HTML)
* [DL380 G7 Quickspec](http://h18004.www1.hp.com/products/quickspecs/13595_na/13595_na.HTML)

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|  | **Recommended** | Supported | Unsupported | **Comments** |
| Chasis | * Either Model * Redundant power configuration | DL-180 G6, DL-370 G7, DL-380 G7 | All other HP models by exception only | server Intel® 5520 Chipset |
| Processor |  | Dual Six-core processors   * Intel® Xeon® X5690 - 3.46GHz * Intel® Xeon® X5680 - 3.33GHz * Intel® Xeon® X5675 - 3.06GHz * Intel® Xeon® X5660 - 2.80GHz * Intel® Xeon® X5650 - 2.66GHz * Intel® Xeon® E5649 - 2.53GHz * Intel® Xeon® E5645 - 2.40GHz * Intel® Xeon® L5640 - 2.26GHz   (also any faster versions of Six-core processors) | * Quad -core processors * Single socket configuratoins * AMD based servers | Intel® 5520 Chipset |
| Memory | 32GB | 16GB Min, 128GB Max |  |  |
| NIC |  |  |  |  |
| RAID | HP Smart Array P410/512 with FBWC  Smart Array Advanced Pack (SAAP) [verify]. | HP Smart Array P410/256 with FBWC or  HP Smart Array P410/512 with FBWC  Smart Array Advanced Pack (SAAP) [verify]. | HP Smart Array B110i  HP Smart Array P212  HP Smart Array P410 with BBWC |  |
| System Disk |  | 2x  200GB Min (mirrored) 7.2K or 10/15 |  |  |
| Data Disk |  |  | * SSD * SFF Drives (see HPC Config) |  |

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| Parameter | **Sensitivity** | **Why** | **Other considerations** |
| Base Server Model | * Server RAS features * Server Motherboard/Chipset/BIOP | * Ensures server provider provides proper diagnosis to avoid routine hardware failures being directed to Red Hat.  Includes BMS, monitoring tools, disk drive LEDs for field service call-out * Chipset of motherboard/chipset/bios as implications on PCI qual and installation processes |  |
| Processor | * Vendor + Processor generation (e.g.: IBM Westmere) * Number of cores * Number of sockets * Minimum processor speed | * Maintain suitable performance characteristics, include processor memory-to-memoty copy performance * Maintain consistence with scale-out model (ie: avoid >2 socket scale-up investments) |  |
| Memory | * Minimum memory * Memory certification | * Ensures minimum performance and stable operation * Ensures server vendor stands behind any memory problems, problems of memory components for reflected to Red Hat support. |  |
| NIC | * Technology:1gE, 10gE * Advanced capabilities: RDMA, TOE | * Actual NIC performance vs wire speed * State of RHEL vendor-specific driver support for RDMA, offload ... * NIC support by server vendor (integrated support model) * Currently don't support NIC bonding, so 10gE perferred over bonded quad 1gE (may relax in the future) * 1gE NIC's don't support RDMA, whereas many 10gE NICs provide this capability | * Infiniband configurations have proved difficult to configure and deply in the past, try to steer customers to 10gE where possible. |
| RAID | * Robustness of RAID controller * Minimum RAID capabilities (RAID06) * Robust write-back cache configuration without data loss * Adequacy of RAS:  configuration tools, error reporting, firmware update | * Anchors storage cabilities, need to ensure no hardware related data loss * Performance | * Need to develop support model if using 3rd party RAID controllers to avoid Red Hat serving as hardware integrator |
| Disk | * Number of drives * Drive performance characteristics * Drive firmeware, drive default caching settings, drive/RAID interoperability | * Consistency of RAID6 configuration * Robustness of RAID+Drive integration * Serviceability | * Avoid green drives * additional testing needed before use of SSD |
| RAS | 1) Drive LED call-out  2) Interrogate & control write-back state of drives |  |  |

**HP High Performance Configuration**

To be Specced

**Configuration Guideline Background**

The following table provides information on SSA sensitivity to various configuration elements.  This information may be useful in assessing risk when reviewing configuration exception requests and when new platform qualification required.