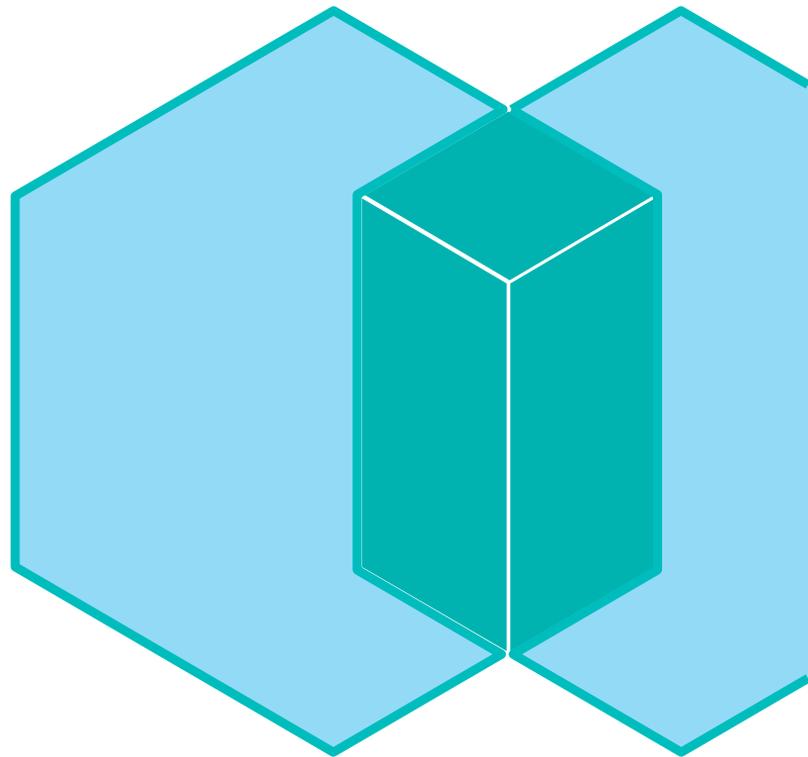




IBM Spectrum Scale Licensing

Spectrum Scale User Group Meeting
London – May 18, 2016

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European Sales Leader
IBM Spectrum Scale



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Appendix: most frequently used Spectrum Scale part numbers in IBM Passport Advantage

Supported IBM Spectrum Scale Versions

Version	GA	EOM	EOS
GPFS V3.5	Oct. 29, 2013	Apr. 15, 2016	Apr. 30, 2017
Spectrum Scale V4.1	May 2 nd , 2014		
Spectrum Scale V4.1.1	Jun. 12, 2015		
Spectrum Scale V4.2	Nov. 20, 2015		

GA: General Availability

EOM: End Of Marketing

EOS: End Of Support

- Nodes in a given Spectrum Scale cluster must all be on either Spectrum Scale V4, or GPFS V3.5
- Clients running GPFS V3.5 with an active IBM software maintenance agreement can convert their entitlements to Spectrum Scale V4 (more later on the conversion process)

IBM Spectrum Scale V4 Editions

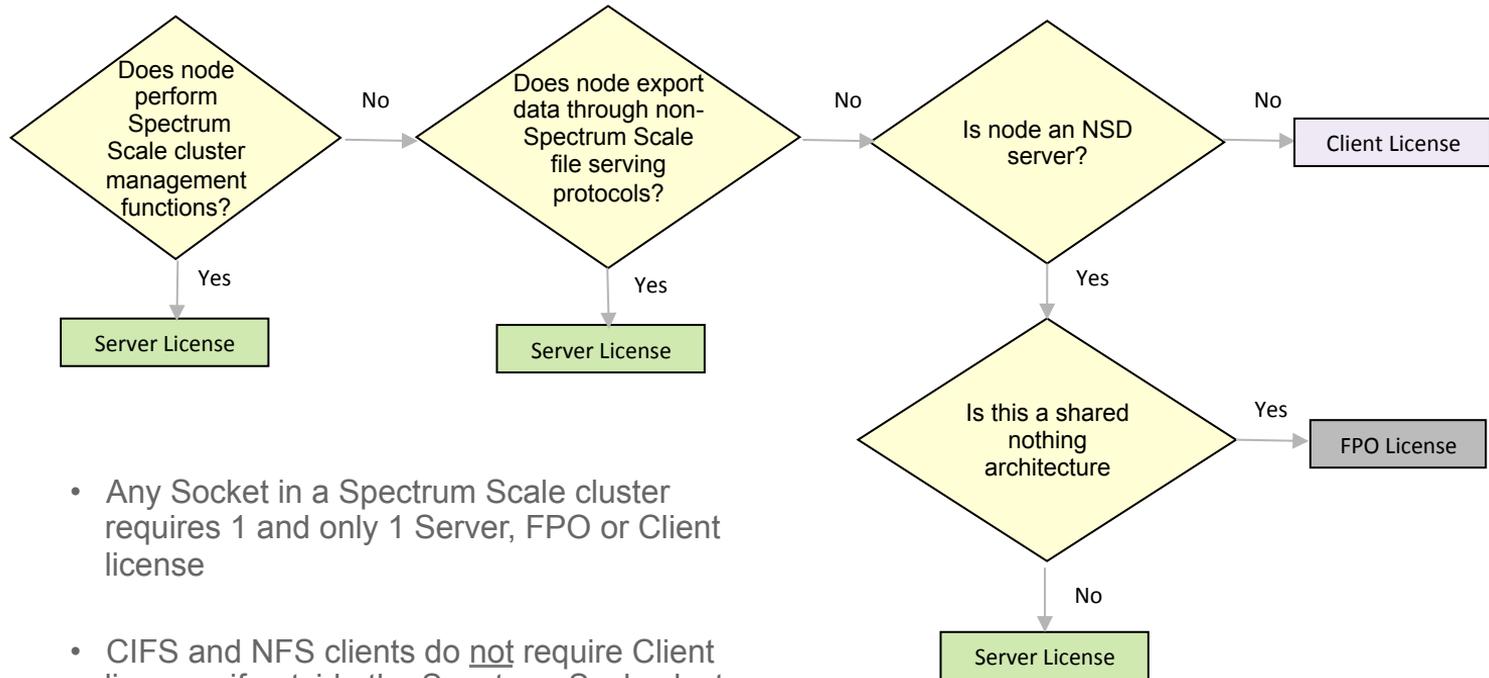
	Express Edition	Standard Edition	Advanced Edition
Support for maximum file system size, number of files, file systems and number of nodes	✓	✓	✓
Node roles: Collector node, Admin node	Free	Free	Free
Node roles: Cluster Config Server, Manager, quorum, tie-breaker, NSD server	✓	✓	✓
Multi-cluster	✓	✓	✓
Quotas (user and group only)	✓	✓	✓
Snapshots	✓ (file system)	✓ (file set)	✓ (file set)
Management GUI		✓	✓
Compression (2:1 to 5:1 ratio)	✓	✓	✓
Quality of Service	✓	✓	✓
Filesets		✓	✓
Multi Protocol access		✓	✓
Storage Pools		✓	✓
ILM Placement and Management policies		✓	✓
HSM with TSM or LTFS		✓	✓
Transparent Cloud Tiering [Tech Preview only]			✓
AFM caching and Asynchronous DR (gateway nodes)			✓
Encryption of data at rest and secure erase			✓

- Nodes in a given Spectrum Scale cluster must all be on the same Spectrum Scale Edition
- Clients with an active IBM software maintenance agreement have the option to trade-up their Spectrum Scale Edition

IBM Spectrum Scale V4 licenses

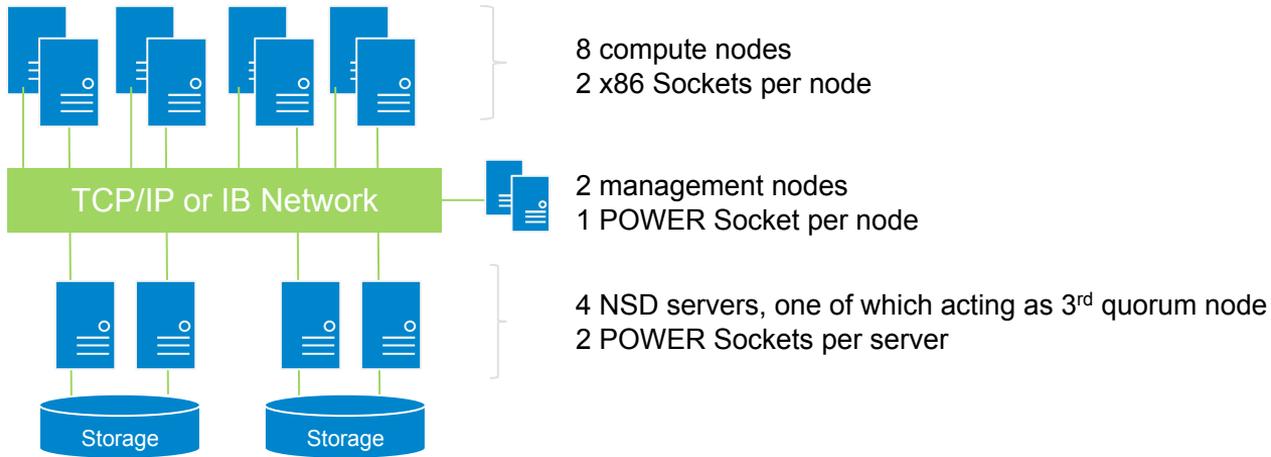
- **Spectrum Scale Server:**
 - Required for nodes performing management function, protocol conversion, and/or serving Network Shared Disks (NSD)
 - Perpetual license, priced per Socket for x86 and POWER, per Processor Value Unit (PVU) for System z
- **Spectrum Scale File Placement Optimizer (FPO):**
 - Required for non-Server nodes in a Shared Nothing Cluster (SNC) configuration
 - Perpetual license, priced per Socket for x86 and POWER, not available for System z
- **Spectrum Scale Client:**
 - Required for non-Server nodes consuming NSD services in a Spectrum Scale cluster
 - Perpetual license, priced per Socket for x86 and POWER, per Processor Value Unit (PVU) for System z
- **Spectrum Scale RAID:**
 - Only and always configured in IBM Elastic Storage Server (ESS) solution
 - Perpetual license, priced per NSD server (2 IBM Power S822L servers per ESS unit)

IBM Spectrum Scale V4 license selection guide



- Any Socket in a Spectrum Scale cluster requires 1 and only 1 Server, FPO or Client license
- CIFS and NFS clients do not require Client licenses if outside the Spectrum Scale cluster

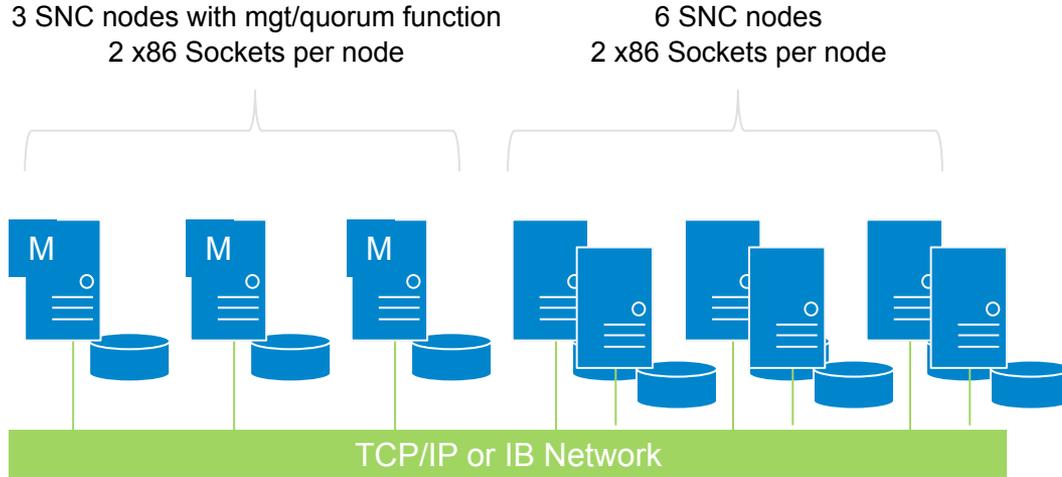
IBM Spectrum Scale V4 deployment example 1: Network Shared Disk (NSD)



Spectrum Scale licensing requirements:

- 10 Server Sockets
- 16 Client Sockets

IBM Spectrum Scale V4 deployment example 2: Shared Nothing Cluster (SNC)

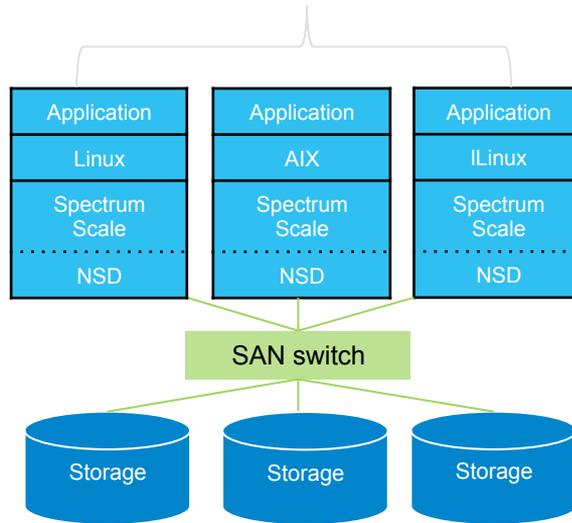


Spectrum Scale licensing requirements:

- 6 Server Sockets
- 12 FPO Sockets

IBM Spectrum Scale V4 deployment example 3: Storage Area Network (SAN)

3 enterprise servers
4 POWER Sockets per server



Spectrum Scale licensing requirements:

- 12 Server Sockets

A closer look at IBM Spectrum Scale V4 socket-based pricing

- V4 licenses for x86 and POWER are priced per populated socket available to be used by Spectrum Scale.
- The number of sockets available to use can be reduced by physical or logical means (e.g. leave socket unpopulated, deactivate socket using BIOS)
- A populated socket will typically have multiple cores. To determine the number of Socket licenses required for a given machine, count the maximum number of cores which could possibly be in active use by Spectrum Scale at any given point in time, divide by the number of cores per socket, and convert to the corresponding number of Sockets (rounding up any fraction). If the whole machine is available to Spectrum Scale, the answer is simply the number of active sockets in the machine.
- If Spectrum Scale is running in Virtual Machines (e.g. VMware, KVM, PowerVM, LPAR), the licensing rules are essentially the same, but the above Socket calculation is based on the maximum number of virtual cores allocated in Virtual Machines instead of physical cores. For the full details, see [Virtualization Capacity License Counting Rules](#) and [Sub-capacity licensing FAQs](#).
- It is theoretically possible to allocate more virtual cores than there are physical cores on a given machine. You might do this for example if you have a large number of processes, each in their own VM, each of which is active only in brief spurts. For this reason, IBM licensing rules specify that the number of Socket licenses required for virtual cores is never more than the total number of active, physical sockets in the machine.

IBM Spectrum Scale ordering and fulfilment

- **IBM software only:**
 - Ordered through IBM Passport Advantage (PA)
 - For further details, see <http://www-01.ibm.com/software/passportadvantage/>
- **IBM solutions (hardware + software):**
 - Ordered through IBM Advanced Administration System (AAS)
 - All Spectrum Scale V4 entitlements generated in AAS are automatically mirrored in PA
 - Some GPFS V3.5 entitlements were only recorded in AAS
- **Original Equipment Manufacturer (OEM) solutions:**
 - Available from DDN, Fujitsu, Lenovo, Seagate, ...
 - Spectrum Scale entitlements are managed by the OEM, and linked to the OEM hardware

Converting your IBM GPFS V3.5 entitlements to Spectrum Scale V4

- Since GPFS V3.5 licenses were priced per Processor Value Unit (PVU), and IBM Spectrum Scale V4 licenses are priced per Socket, a license exchange (PA to PA) or migration (AAS to PA) will be required to convert your entitlements.
- This conversion can be done at any time provided your IBM Software Maintenance agreement is active (it does not have to be done at the time of renewal).
- Your GPFS V3.5 licenses will be converted to the equivalent Spectrum Scale V4, Standard Edition licenses. This conversion will require a detailed, collaborative analysis of your license inventory, and of the underlying hardware platforms.
- Your full Spectrum Scale entitlements will be recorded and accessible in Passport Advantage post conversion.
- Please contact your IBM sales representative if you wish to initiate a conversion from GPFS 3.5 to Spectrum Scale V4

Introducing the IBM Spectrum Storage Suite

Simplified and predictable licensing model for entire IBM Spectrum Storage family



 IBM Spectrum Control

 IBM Spectrum Protect

 IBM Spectrum Archive

 IBM Spectrum Virtualize

 IBM Spectrum Accelerate

 IBM Spectrum Scale

- **Simplify financial planning**
 - Straightforward per-TB pricing for the entire suite
 - Pricing related to storage capacity, regardless of storage use
 - Savings up to 40% compared with licensing offerings separately
- **Support business growth and changing requirements**
 - No software licensing hassle when migrating from one storage or data type to another
 - No unexpected charges when using new capabilities
- **Enable rapid testing and deployment of new business solutions**
 - No delay while necessary software is acquired
 - No-charge usage of software for non-production use
- **Improve productivity and reduce error**
 - Consistent user interface across all offerings
- **Simplify support with all SDS solutions from IBM**

Useful IBM information sources on Spectrum Scale licensing

Spectrum Scale Frequently Asked Questions and Answers:

https://www.ibm.com/support/knowledgecenter/api/content/nl/enus/STXKQY_4.2.0/gpfsclustersfaq.html

Offering Information:

http://www-01.ibm.com/common/ssi/index.wss?request_locale=en

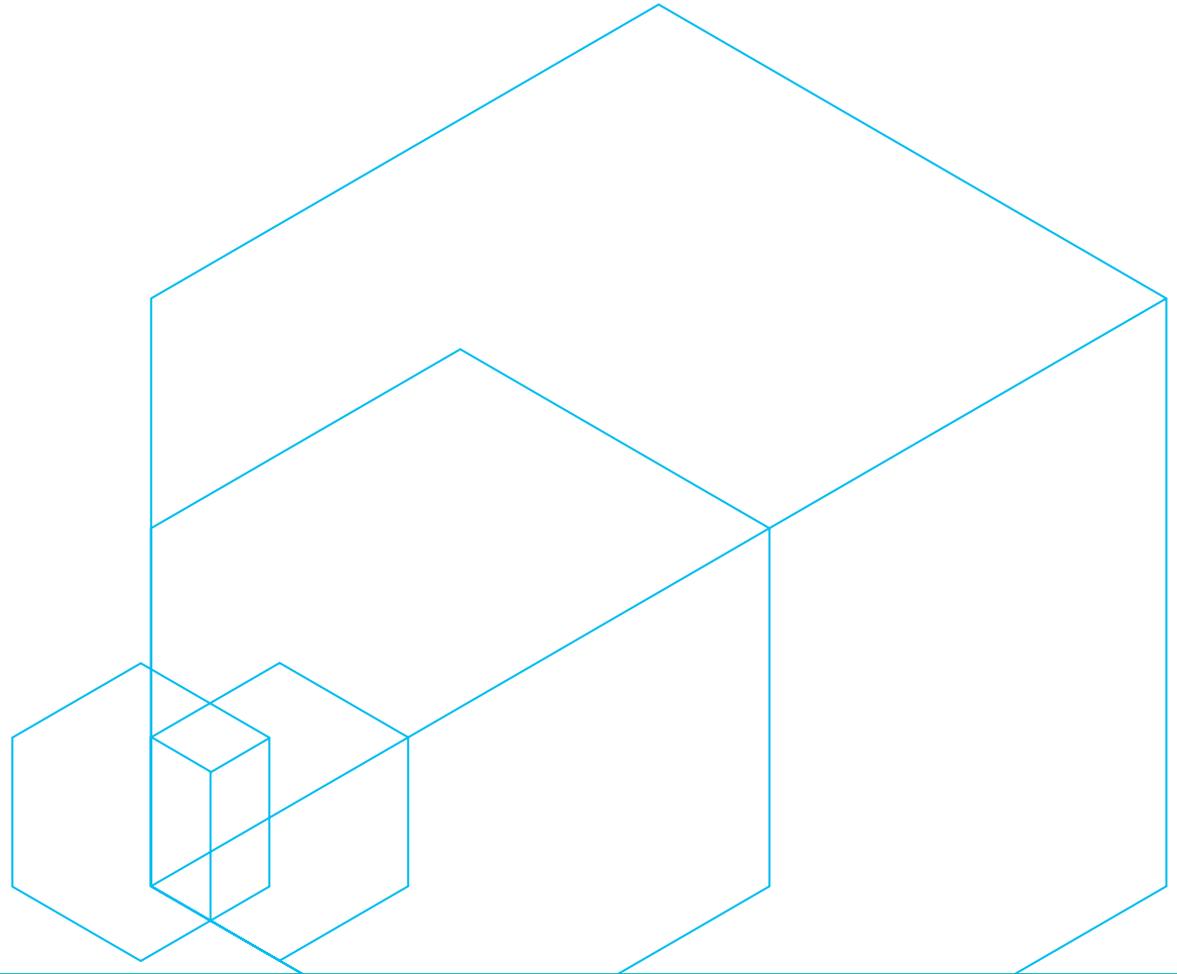
License Information:

<http://www-03.ibm.com/software/sla/sladb.nsf>

Thank you.



ibm.com/systems



IBM Spectrum Scale in Passport Advantage: Most frequently used part numbers

PID	Description
Express Edition	
D148RLL	IBM GPFS Express Client per Socket LIC + SW MAINT 12 MO
EOJ9ZLL	IBM GPFS Express Client per Socket ANNUAL SW MAINT RENEWAL
D148SLL	IBM GPFS Express Client per Socket SWMA REINSTATE 12 MO
D149DLL	IBM GPFS Express Server per Socket LIC + SW MAINT 12 MO
EOJAKLL	IBM GPFS Express Server per Socket ANNUAL SW MAINT RENEWAL
D149ELL	IBM GPFS Express Server per Socket SWMA REINSTATE 12 MO
D14AHL	IBM GPFS Express FPO per Socket LIC + SW MAINT 12 MO
EOJBNLL	IBM GPFS Express FPO per Socket ANNUAL SW MAINT RENEWAL
D14AILL	IBM GPFS Express FPO per Socket SW MAINT REINSTATE 12 MO
Standard Edition	
D148HLL	IBM GPFS Standard Client per Socket LIC + SW MAINT 12 MO
EOJ9WLL	IBM GPFS Standard Client per Socket ANNUAL SW MAINT RENEWAL
D148ILL	IBM GPFS Standard Client per Socket SWMA REINSTATE 12 MO
D148KLL	IBM GPFS Standard Server per Socket LIC + SW MAINT 12 MO
EOJ9XLL	IBM GPFS Standard Server per Socket ANNUAL SW MAINT RENEWAL
D148LLL	IBM GPFS Standard Server per Socket SWMA REINSTATE 12 MO
D148NLL	IBM GPFS Standard FPO per Socket LIC + SW MAINT 12 MO
EOJ9YLL	IBM GPFS Standard FPO per Socket ANNUAL SW MAINT RENEWAL
D148PLL	IBM GPFS Standard FPO per Socket SW MAINT REINSTATE 12 MO
Advanced Edition	
D14ANLL	IBM GPFS Advanced Client per Socket LIC + SW MAINT 12 MO
EOJBRLL	IBM GPFS Advanced Client per Socket ANNUAL SW MAINT RENEWAL
D14APLL	IBM GPFS Advanced Client per Socket SWMA REINSTATE 12 MO
D14ASLL	IBM GPFS Advanced Server per Socket LIC + SW MAINT 12 MO
EOJBSLL	IBM GPFS Advanced Server per Socket ANNUAL SW MAINT RENEWAL
D14ATLL	IBM GPFS Advanced Server per Socket SWMA REINSTATE 12 MO
D14AWLL	IBM GPFS Advanced FPO per Socket LIC + SW MAINT 12 MO
EOJBTLL	IBM GPFS Advanced FPO per Socket ANNUAL SW MAINT RENEWAL
D14AXLL	IBM GPFS Advanced FPO per Socket SW MAINT REINSTATE 12 MO
Edition Tradeups	
D14AQLL	GPFS Adv Client fr GPFS Exp Client Sckt Trdup Lic+SW S&S 12 Mo
D14AULL	GPFS Adv Server fr GPFS Exp Server Sckt Trdup Lic+SW S&S 12 Mo
D14AYLL	GPFS Adv FPO from GPFS Exp FPO Socket Tradeup Lic+SW S&S 12 Mo
D14ARLL	GPFS Adv Client fr GPFS Std Client Sckt Trdup Lic+SW S&S 12 Mo
D14AVLL	GPFS Adv Server fr GPFS Std Server Sckt Trdup Lic+SW S&S 12 Mo
D14AZLL	GPFS Adv FPO from GPFS Std FPO Socket Tradeup Lic+SW S&S 12 Mo
D148JLL	GPFS Std Client fr GPFS Exp Client Sckt Trdup Lic+SW S&S 12 Mo
D148MLL	GPFS Std Server fr GPFS Exp Server Sckt Trdup Lic+SW S&S 12 Mo
D148QLL	GPFS Std FPO from GPFS Exp FPO Socket Tradeup Lic+SW S&S 12 Mo