IBM System x

Features On Demand Key
For IMM2 in IBM System x / BladeCenter / iDataPlex
ServeRAID SAS / SATA Controllers

Preface

This document gives an overview of all current IBM ServeRAID SAS / SATA controllers and their respective Features On Demand (FoD) keys. Additionally there is an overview of the Features on Demand of the Integrated Management Module 2 (IMM2) in IBM System x, BladeCenter and iDataPlex servers.

The sections of this document discussing a specific FoD key start with the IBM Feature Code for that specific FoD, e.g.

A1MK - IBM Integrated Management Module Standard Upgrade

The A1MK is the IBM Feature Code for this FoD key.

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Features on Demand Key

Features on Demand (FoD) is a method to add features to an IBM System x server without having to add hardware. IBM includes the capability with the server. If the feature is required then the customer pays only at the time it is first enabled. This allows users to activate or unlock features in the firmware or software on demand.

IMM2 Features on Demand keys

In this section the Features on Demand keys for the IMM2 in IBM System x, BladeCenter and iDataPlex servers are discussed. At the end of this chapter is a web link to an IBM Redbook tip that contains more information and shows an overview of servers that have an integrated IMM2.

IMM2 Basic

Shipped with the server as standard.
IMM2 Basic has the following features:

- Industry-standard interfaces and protocols
- Intelligent Platform Management Interface (IPMI) Version 2.0
- Common Information Model (CIM)
- Advanced Predictive Failure Analysis (PFA) support
- Continuous health monitoring
- Choice of a dedicated or shared Ethernet connection
- Domain Name System (DNS) server support
- Dynamic Host Configuration Protocol (DHCP) support
- Embedded Dynamic System Analysis (DSA)
- LAN over USB for in-band communications to the IMM
- Serial over LAN
- Server console serial redirection

Note: IMM2 Basic does not include web browser or remote presence capabilities.

A1MK - IBM Integrated Management Module Standard Upgrade

IMM2 Standard (as standard in some servers or as enabled using the Features on Demand software license key in other servers) has the following features:

- Secure web server user interface
- Remote firmware updating
- Remote power control
- Access to server vital product data (VPD)
- Advanced Predictive Failure Analysis (PFA) support
- Automatic notification and alerts
- Continuous health monitoring and control
- Choice of a dedicated or shared Ethernet connection
- Domain Name System (DNS) server support
- Dynamic Host Configuration Protocol (DHCP) support
- Email alerts
- Syslog logging support
- Embedded Dynamic System Analysis (DSA)
- Enhanced user authority levels
- LAN over USB for in-band communications to the IMM
- Event logs that are time stamped, saved on the IMM, and that can be attached to e-mail alerts
- Support for Industry-standard interfaces and protocols: IPMI V2.0, CIM, and SNMP
- OS watchdogs
- Remote configuration through Advanced Settings Utility (ASU)
- Serial over LAN
- Server console serial redirection
- User authentication using a secure connection to a Lightweight Directory Access Protocol (LDAP) server

A1ML - IBM Integrated Management Module Advanced Upgrade

IMM2 Advanced (as enabled using the Features on Demand software license key) has the following features:

- Remote presence, including remote control of a server via a Java or Active x client
- Operating system failure screen capture and display through the web interface
- Virtual media allowing the attachment of a diskette drive, CD/DVD drive, USB flash drive, or disk image to a server

Note: For servers such as the x3100 M4 and x3250 M4, IMM2 Advanced requires IMM2 Standard to be purchased and enabled.

Additional information on IMM2 FoD

Additional and up-to-date information on IMM2 FoD for System x / BladeCenter / iDataPlex can be found at:

http://www.redbooks.ibm.com/abstracts/tips0849.html

IBM ServeRAID Features on Demand keys

The following FoD keys are for IBM SAS / SATA ServeRAID Host Bus Adapters (HBA). All links provided in this chapter refer to the relevant IBM ServeRAID HBA and not the Features on Demand key itself.

A2V7 – 8-pack SATA Enablement Key for IBM System x

The Option part number is 90Y4349. It is for the IBM ServeRAID C105 HBA when installing and using four additional SATA hard disk drives.

Further information is available at:

http://www.redbooks.ibm.com/abstracts/tips0855.html

A36G – ServeRAID M5100 Series SSD Caching Enabler

The Option part number is 90Y4447. It is used with IBM Flex Systems. It enables caching for SSD disk drives. It is used with the ServeRAID M5115 SAS/SATA Controller for IBM Flex System Option part number 90Y4390.

The following settings have to be made:

- The Write Policy needs to be set to Write Back
- The I/O Policy needs to be changed to Cached IO

Further information is available at:

http://www.redbooks.ibm.com/abstracts/tips0884.html

A2MC – ServeRAID M5100 Performance Key for IBM System x

The Option part number is 90Y4273. It is used with the following IBM System x ServeRAID HBAs:

- ServeRAID M5110 SAS/SATA Controllers for IBM System x Option part number 81Y4481
- ServeRAID M5110e SAS/SATA Controllers for IBM System x on the system board of the IBM System x3650 M4 (7915) and the IBM System x 3750 M4 (8722)
- ServeRAID M5120 SAS/SATA Controller Option part number 81Y4478

This FoD
- requires the installation of a transportable memory module, TMM, sometimes also TMM
- provides a performance boost for ServeRAID M5100 Series SAS/SATA Controllers when used in a multi-SSD environment

Further information is available at:

IBM ServeRAID M5110 / M5110e

www.redbooks.ibm.com/abstracts/tips0857.html

IBM ServeRAID M5120

http://www.redbooks.ibm.com/abstracts/tips0858.html

A2MD – ServeRAID M5100 Series SSD Caching Enabler

The Option part number is 90Y4318. It is used for IBM System x servers. It enables caching for SSD disk drives. It is used with the following IBM System x ServeRAID HBAs:

- ServeRAID M5110 SAS/SATA Controllers for IBM System x Option part number 81Y4481
- SereveRAID M5110e SAS/SATA Controllers for IBM System x on the System Board of the IBM System x3650 M4 (7915) and the IBM System x 3750 M4 (8722)
- ServeRAID M5120 SAS/SATA Controller Option part number 81Y4478

The following settings have to be made:

- The Write Policy needs to be set to Write Back
- The I/O Policy needs to be changed to Cached IO

Further information is available at:

IBM ServeRAID M5110 / M5110e

http://www.redbooks.ibm.com/abstracts/tips0857.html

IBM ServeRAID M5120

http://www.redbooks.ibm.com/abstracts/tips0858.html

A2Y1 – ServeRAID M5100 Series RAID 6 Upgrade

The Option part number is 90Y4410. It is used with the ServeRAID M5115 SAS/SATA Controller for IBM Flex System Option part number 90Y4390. It adds RAID 6 and RAID 60 support.

Further information is available at:

http://www.redbooks.ibm.com/abstracts/tips0884.html

A1X1 – ServeRAID M1100 Series Zero Cache RAID 5 Upgrade

This feature code is also referred to as "ServeRAID M1100 / M5100 Series Zero Cache RAID 5 Upgrade".

The Option part number is 81Y4542. It is used with the IBM ServeRAID M1115 SAS/SATA Controller for IBM System x Option part number 81Y4448. Per default the IBM ServeRAID M1115 HBA provides RAID 0 / 1 / 10. In order to create and use RAID5 configurations this FoD must be installed.

Further information is available at:

http://www.redbooks.ibm.com/abstracts/tips0856.html

A2Y2 - ServeRAID M5100 Series Performance Key

The Option part number is 90Y4412. It is used with the ServeRAID M5115 SAS/SATA Controller for IBM Flex System Option part number 90Y4390.

This FoD is also referred to as "ServeRAID M5100 Series Performance Upgrade for IBM Flex System" or "ServeRAID M5100 Series Performance Upgrade for System x".

This FoD
- requires the installation of a transportable memory module, TMM, sometimes also TMM
- provides a performance boost for ServeRAID M5100 Series SAS/SATA Controllers when used in a multi-SSD environment

Further information is available at:

http://www.redbooks.ibm.com/abstracts/tips0884.html

A1X2 - ServeRAID M5100 Series Zero Cache RAID 5 Upgrade

The Option part number is 81Y4544. It is used with the following IBM System x ServeRAID HBAs:

- ServeRAID M5110 SAS/SATA Controllers for IBM System x Option part number 81Y4481
- ServeRAID M5110e SAS/SATA Controllers for IBM System x on the System Board of the IBM System x3650 M4 (7915) and the IBM System x 3750 M4 (8722)

After installing this FoD RAID 5 features can be used without having to install a transportable memory module, TMM. When using this feature code a RTMM cannot be installed.

This feature is also referred to as "ServeRAID M1100 / M5100 Series Zero Cache RAID 5 Upgrade".

Further information is available at:

http://www.redbooks.ibm.com/abstracts/tips0857.html

A1X3 – ServeRAID M5100 Series RAID 6 Upgrade

The Option part number is 81Y4546. it is used with the following IBM System x ServeRAID HBAs:

- ServeRAID M5110 SAS/SATA Controllers for IBM System x Option part number 81Y4481
- ServeRAID M5110e SAS/SATA Controllers for IBM System x on the System Board of the IBM System x3650 M4 (7915) and the IBM System x 3750 M4 (8722)
- ServeRAID M5120 SAS/SATA Controller Option part number 81Y4478

This FoD enables RAID 6 and RAID 60 on the listed IBM ServeRAID HBAs.

Further information is available at:

IBM ServeRAID M5110 / M5110e
http://www.redbooks.ibm.com/abstracts/tips0857.html

IBM ServeRAID M5120
http://www.redbooks.ibm.com/abstracts/tips0858.html

Feature on Demand Keys listed per IBM ServeRAID HBA

This section lists all FoDs with their respective order part number and Feature Code (FC).

C105

- 90Y4349, FC A2V7 – 8-pack SATA Enablement Key for IBM System x

M1110

- 81Y4542, FC A1X1 - ServeRAID M1100 Series Zero Cache/RAID 5 Upgrade for IBM System x

Table 1 - ServeRAID M1115 optional upgrade and its features:

	Feature	RAID 5, 50	SED, Self Encrypting Disk
Option description	**Part number**	**Type**		
ServeRAID M1100 Series Zero Cache/RAID 5 Upgrade	81Y4542	FoD	Yes	Yes

M5115 for IBM Flex System

- 90Y4410, FC A2Y1 - ServeRAID M5100 Series RAID 6 Upgrade for IBM Flex System
- 90Y4412, FC A2Y2 - ServeRAID M5100 Series Performance Upgrade for IBM Flex System
- 90Y4447, FC A36G – ServeRAID M5100 Series SSD Caching Enabler for IBM Flex System

M5110 / M5110e

- 90Y4273, FC A2MC - ServeRAID M5100 Series SSD Performance Accelerator for IBM System x
- 90Y4318, FC A2MD - ServeRAID M5100 Series SSD Caching Enabler for IBM System x
- 81Y4544, FC A1X2 - ServeRAID M5100 Series Zero Cache/RAID 5 Upgrade for IBM System x
- 81Y4546, FC A1X3 - ServeRAID M5100 Series RAID 6 Upgrade for IBM System x

Table 2 - ServeRAID M5110 and M5110e primary upgrades and their features:

	Feature	RAID 5, 50	SED, Self Encrypting Disk	512 MB DDR3 cache	1 GB DDR3 cache	Flash-backed cache
Option description	**Part number**	**Type**					
ServeRAID M5100 Series Zero Cache/RAID 5 Upgrade	81Y4544	FoD	Yes	Yes	No	No	No

Table 3 - ServeRAID M5110 and M5110e secondary upgrades, their features, and dependencies:

	Primary feature upgrades		Option description	Zero Cache / RAID 5	512 MB Cache / RAID 5	512 MB Flash / RAID 5	1 GB Flash / RAID 5
Secondary feature upgrades			**Part number**	81Y4544	81Y4484	81Y4487	81Y4559
			Upgrade type	FoD	HW	HW	HW
Feature	**Option description**	**Part number**	**Type**				
RAID 6, 60	RAID 6 Upgrade	81Y4546	FoD	No support	Required	Required	Required
FastPath	SSD Performance Accelerator	90Y4273	FoD	No support	Required	Required	Required
CacheCade Pro 2.0	SSD Caching Enabler	90Y4318	FoD	No support	Required	Required	Required

M5120

- 90Y4273, FC A2MC - ServeRAID M5100 Series SSD Performance Accelerator for IBM System x
- 90Y4318, FC A2MD - ServeRAID M5100 Series SSD Caching Enabler for IBM System x
- 81Y4546, FC A1X3 - ServeRAID M5100 Series RAID 6 Upgrade for IBM System x

Table 4 - ServeRAID M5120 additional upgrades, their features, and compatibility:

Cache upgrades		**Option description**		512 MB Cache / RAID 5	512 MB Flash / RAID 5	1 GB Flash / RAID 5
Additional feature upgrades		**Part number**		81Y4484	81Y4487	81Y4559
		Upgrade type		HW	HW	HW
Feature	**Option description**	**Part number**	**Type**			
RAID 6, 60	RAID 6 Upgrade	81Y4546	FoD	Yes	Yes	Yes
FastPath	SSD Performance Accelerator	90Y4273	FoD	Yes	Yes	Yes
CacheCade Pro 2.0	SSD Caching Enabler	90Y4318	FoD	Yes	Yes	Yes

Further reading on Features On Demand Keys

For further information on how to use the Features On Demand key refer to the *IBM Features on Demand User's Guide* available in the IBM Support document MIGR-5089568 located at:

http://www.ibm.com/support/entry/portal/docdisplay?lndocid=migr-5089568

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