Problem Determination Specification

IBM x366

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1 Introduction

This document describes the sensors list of the IBM eServer xSeries brand Baseboard Management Controller (BMC) on the IBM x366. This document describes only sensors for the listed IBM x366.

2 – X366 Sensor Table

Thresholds for threshold based sensors are noted as shown below.

- UNC = Upper Non-Critical
- UC = Upper Critical
- UNR = Upper Non-Recoverable
- LNC = Lower Non-Critical
- LC = Lower Critical
- LNR = Lower Non-Recoverable
- NR = Non-Redundant
- LF = Low Fuel
- OS = Over Spec

Table 1-5: X366 Sensors

Sensor Name	Sensor Number	Sensor Type	Sensor Reading Type	Logged Assertions	Logged De-Assertions	Event or Error	Repair Actions
Fuel Gauge, X366, 1 PS, 110VAC	**15h**	**03h**	**01h**	NR,LF,**OS**		**Error**	1.Replace Power Supply 2. Replace Power Backplane
Fuel Gauge, X366, 1 PS, 220VAC	16h	03h	01h	NR,LF,OS		Error	
Fuel Gauge, X366, 2 PS, both 110VAC	17h	03h	01h	NR,LF,OS		Error	
Fuel Gauge, X366, 2 PS, both 220VAC	18h	03h	01h	NR,LF,OS		Error	
Fuel Gauge, X366, 2 PS, 1-110VAC and 1-220VAC	19h	03h	01h	NR,LF,OS		Error	
X366 Not Redundant	1Eh	08h	03h	00h – State Deasserted 01h – State Asserted		Error	
CPU 12V Fault	22h	09h	03h	00h – State Deasserted 01h – State Asserted		Error	
VRD 1 Status	**24h**	**08h**	**6Fh**	**01h - Power Unit Failure**	01h – Power Unit Failure	**Error**	**Replace CPU card**
VRD 2 Status	25h	08h	6Fh	01h - Power Unit Failure	01h - Power Unit Failure	Error	
VRM 3 Status	**26h**	**08h**	**6Fh**	00h – Presence detected 01h - Power Unit Failure **07h – Configuration**	00h – Presence detected 01h - Power Unit Failure 07h – Configuration	Event Error **Error**	1.Check VRMs installed 2. Replace VRM
VRM 4 Status	27h	08h	6Fh	00h – Presence detected 01h - Power Unit Failure 07h – Configuration	00h – Presence detected 01h - Power Unit Failure 07h – Configuration	Event Error Error	
X366 12V Faults	2Ch	09h	70h	02h – 240VA Fault	02h – 240VA Fault	Error	
Tower 12V Faults	2Dh	09h	71h	02h – 240VA Fault	02h – 240VA Fault	Error	
Ambient Temp	32h	01h	01h			--	
Hurricane Temp	36h	01h	01h	UNC,UNR	UNC,UNR	--	
X366 Power Supply 1 Fault	38h	08h	70h	01h – Power Unit Failure	01h – Power Unit Failure	Error	
X366 Power Supply 2 Fault	39h	08h	70h	01h – Power Unit Failure	01h – Power Unit Failure	Error	
Fan 1 Tach	40h	04h	01h	LC	LC	Error	
Fan 2 Tach	41h	04h	01h	LC	LC	Error	
Fan 3 Tach	42h	04h	01h	LC	LC	Error	

Sensor Name	Sensor Number	Sensor Type	Sensor Reading Type	Logged Assertions	Logged De-Assertions	Event or Error	Repair Actions
Fan 4 Tach	43h	04h	01h	LC	LC	Error	
Fan 5 Tach	44h	04h	01h	LC	LC	Error	
Fan 6 Tach	45h	04h	01h	LC	LC	Error	
Fan 7 Tach	46h	04h	01h	LC	LC	Error	
Fan 8 Tach	47h	04h	01h	LC	LC	Error	
Fan Configuration Invalid	4Eh	04h	03h	00h – State Deasserted 01h – State Asserted		Error	
PS 4 Slot Filler Fan Fault	4Fh	0Ah	03h	00h – State Deasserted 01h – State Asserted		Error	
Fan 1 Detect	50h	04h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Fan 2 Detect	51h	04h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Fan 3 Detect	52h	04h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Fan 4 Detect	53h	04h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Fan 5 Detect	54h	04h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Fan 6 Detect	55h	04h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Fan 7 Detect	56h	04h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Fan 8 Detect	57h	04h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
X366 DASD 0 Detect	5Eh	0Dh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
X366 DASD 1 Detect	5Fh	0Dh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
X366 DASD 2 Detect	60h	0Dh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
X366 DASD 3 Detect	61h	0Dh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
X366 DASD 4 Detect	62h	0Dh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
X366 DASD 5 Detect	63h	0Dh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
X366 PS 1 Status	**70h**	**08h**	**6Fh**	00h – Presence Detected **01h – Power Supply Failure** **03h – Power Supply AC loss**	00h – Presence Detected **01h – Power Supply Failure** **03h – Power Supply AC loss**	Event **Error** **Error**	1. Check AC Power 2. Replace Power Supply 3. Replace Power Backplane
X366 PS 2 Status	71h	08h	6Fh	00h – Presence Detected 01h – Power Supply Failure 03h – Power Supply AC loss	00h – Presence Detected 01h – Power Supply Failure 03h – Power Supply AC loss	Event Error Error	
NMI State	80h	13h	6Fh	03h – Software NMI		Error	
FP Cable Detect	83h	1Bh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
USB Cable Detect	84h	1Bh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
SP RS485 Cable Detect	85h	1Bh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Hot Plug Switch Cable Detect	86h	1Bh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	

Sensor Name	Sensor Number	Sensor Type	Sensor Reading Type	Logged Assertions	Logged De-Assertions	Event or Error	Repair Actions
RSA II Detect	8Ch	17h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
CPU 1 Status	**90h**	**07h**	**6Fh**	**00h – IERR** 01h – Thermal Trip 05h – Configuration 07h – Processor Presence detect **08h – Processor disabled**	**00h – IERR** 01h – Thermal Trip 05h – Configuration 07h – Processor Presence detect **08h – Processor disabled**	**Error** Error Error Event **Error**	1. Make sure heatsink is properly installed. 2. Replace Processor 3. Replace CPU Board
CPU 2 Status	91h	07h	6Fh	00h – IERR 01h – Thermal Trip 05h – Configuration 07h – Processor Presence detect 08h – Processor disabled	00h – IERR 01h – Thermal Trip 05h – Configuration 07h – Processor Presence detect 08h – Processor disabled	Error Error Error Event Error	
CPU 3 Status	92h	07h	6Fh	00h – IERR 01h – Thermal Trip 05h – Configuration 07h – Processor Presence detect 08h – Processor disabled	00h – IERR 01h – Thermal Trip 05h – Configuration 07h – Processor Presence detect 08h – Processor disabled	Error Error Error Event Error	
CPU 4 Status	93h	07h	6Fh	00h – IERR 01h – Thermal Trip 05h – Configuration 07h – Processor Presence detect 08h – Processor disabled	00h – IERR 01h – Thermal Trip 05h – Configuration 07h – Processor Presence detect 08h – Processor disabled	Error Error Error Event Error	
CPU 1 Mismatch	94h	D2h	6Fh	00h – Vtt Enable Check 01h – Potomac in Cranford only 02h – Tulsa with old VRM 03h – Cache VID mismatch 04h – CPU Mismatch 05h – CPU Speed	00h – Vtt Enable Check 01h – Potomac in Cranford only 02h – Tulsa with old VRM 03h – Cache VID mismatch 04h – CPU Mismtch 05h – CPU Speed	Error	
CPU 2 Mismatch	95h	D2h	6Fh	00h – Vtt Enable Check 01h – Potomac in Cranford only 02h – Tulsa with old VRM 03h – Cache VID mismatch 04h – CPU Mismatch 05h – CPU Speed	00h – Vtt Enable Check 01h – Potomac in Cranford only 02h – Tulsa with old VRM 03h – Cache VID mismatch 04h – CPU Mismtch 05h – CPU Speed	Error	
CPU 3 Mismatch	96h	D2h	6Fh	00h – Vtt Enable Check 01h – Potomac in Cranford only 02h – Tulsa with old VRM 03h – Cache VID mismatch 04h – CPU Mismatch 05h – CPU Speed	00h – Vtt Enable Check 01h – Potomac in Cranford only 02h – Tulsa with old VRM 03h – Cache VID mismatch 04h – CPU Mismtch 05h – CPU Speed	Error	
CPU 4 Mismatch	97h	D2h	6Fh	00h – Vtt Enable Check 01h – Potomac in Cranford only 02h – Tulsa with old VRM 03h – Cache VID mismatch 04h – CPU Mismatch 05h – CPU Speed	00h – Vtt Enable Check 01h – Potomac in Cranford only 02h – Tulsa with old VRM 03h – Cache VID mismatch 04h – CPU Mismtch 05h – CPU Speed	Error	

Sensor Name	Sensor Number	Sensor Type	Sensor Reading Type	Logged Assertions	Logged De-Assertions	Event or Error	Repair Actions
CPU 1 Temp	98h	01h	01h	UNC,UNR	UNC,UNR	Error	
CPU 2 Temp	99h	01h	01h	UNC,UNR	UNC,UNR	Error	
CPU 3 Temp	9Ah	01h	01h	UNC,UNR	UNC,UNR	Error	
CPU 4 Temp	9Bh	01h	01h	UNC,UNR	UNC,UNR	Error	
Memory Card 1 Present	A0h	17h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Memory Card 2 Present	A1h	17h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Memory Card 3 Present	A2h	17h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Memory Card 4 Present	A3h	17h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Scalibility Card Detect	A4h	17h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
X366 Detect	A5h	18h	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
System Reset Source	A8h	09h	71h	01h – Reset		Event	
System On/Off Source	A9h	09h	70h	00h – Power on or off		Event	
Ping Received	AAh	1Bh	70h	01h – State Asserted		Event	
PCI Slot Faults	**ABh**	**21h**	**70h**	**00h – Fault Status**	**00h – Fault Status**	**Error**	**Need to get the next entry which is an "OEM SEL without timestamp". See OEM table below**
PCI PME	ACh	09h	70h	03h – PME (WOL)		Event	
X366 DASD Backplane Detect	ADh	1Bh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Media Cable Detect	AEh	1Bh	08h	00h – Device Removed/Absent 01h – Device Inserted/Present		Event	
Memory Card 1 Power Status	B0h	08h	6Fh	01h – Power Supply Failure	01h – Power Supply Failure	Error	
Memory Card 2 Power Status	B1h	08h	6Fh	01h – Power Supply Failure	01h – Power Supply Failure	Error	
Memory Card 3 Power Status	B2h	08h	6Fh	01h – Power Supply Failure	01h – Power Supply Failure	Error	
Memory Card 4 Power Status	B3h	08h	6Fh	01h – Power Supply Failure	01h – Power Supply Failure	Error	
CPU Card Power Status	B4h	08h	71h	01h – Power Supply Failure	01h – Power Supply Failure	Error	
PCI/Native I/O Card Power Status	B5h	08h	71h	01h – Power Supply Failure	01h – Power Supply Failure	Error	
SEL fullness	B6h	D0h	7Fh	UNC,UC,UNR	UNC,UC,UNR	Event	
Super I/O Card Power Status	B7h	08h	70h	01h – Power Supply Failure	01h – Power Supply Failure	Error	
CPU 1 Processor hot	C0h	01h	03h	00h – State Deasserted 01h – State Asserted		Event	
CPU 2 Processor hot	C1h	01h	03h	00h – State Deasserted 01h – State Asserted		Event	
CPU 3 Processor hot	C2h	01h	03h	00h – State Deasserted 01h – State Asserted		Event	
CPU 4 Processor hot	C3h	01h	03h	00h – State Deasserted 01h – State Asserted		Event	
Machine Check on	**C5h**	**0Ch**	**70h**	**01 – Uncorrectable Error**		**Error**	1. Check for DIMM

Sensor Name	Sensor Number	Sensor Type	Sensor Reading Type	Logged Assertions	Logged De-Assertions	Event or Error	Repair Actions
Memory Card							errors(replace DIMM??) 2. Replace Memory Card 3. Replace CPU Card
Machine Check on Memory DIMM	**C6h**	**0Ch**	**71h**	**01 – Uncorrectable Error**		**Error**	1. Replace Memory DIMM 2. Replace Memory Card 3. Replace CPU Card
Machine Check on Link or Card	C7h	12h	71h	02h – SPINT		Error	
Machine Check	**C8h**	**12h**	**70h**	**02h – SPINT**		**Error**	1. Replace CPU card 2. Replace PCIX card
CPU VRD 1 Hot	CAh	01h	03h	00h – State Deasserted 01h – State Asserted		Error	
CPU VRD 2 Hot	CBh	01h	03h	00h – State Deasserted 01h – State Asserted		Error	
SP Incorrect Configuration	CCh	17h	03h	00h – State Deasserted 01h – State Asserted		Error	
X366 DASD Backplane Incorrect Configuration	CDh	1Bh	03h	00h – State Deasserted 01h – State Asserted		Error	
Power Supply Incorrect Configuration	CFh	0Ah	03h	00h – State Deasserted 01h – State Asserted		Error	
Fault LED	D0h	D1h	08h				
Info LED	D1h	D1h	08h				
CPU LED	D2h	D1h	08h				
VRM LED	D3h	D1h	08h				
DASD LED	D4h	D1h	08h				
Fan LED	D5h	D1h	08h				
Memory Card Fault LED	D6h	D1h	08h				
NMI LED	D7h	D1h	08h				
Overspec LED	D8h	D1h	08h				
Temp LED	D9h	D1h	08h				
SP LED	DAh	D1h	08h				
Locator (ID) LED	DBh	D1h	08h				
CPU 1 LED	DCh	D1h	08h				
CPU 2 LED	DDh	D1h	08h				
CPU 3 LED	DEh	D1h	08h				
CPU 4 LED	DFh	D1h	08h				
Power Fault LED	E0h	D1h	08h				
Link Fault LED	E1h	D1h	08h				
Fan 1 LED	E4h	D1h	08h				
Fan 2 LED	E5h	D1h	08h				
Fan 3 LED	E6h	D1h	08h				
Fan 4 LED	E7h	D1h	08h				
Fan 5 LED	E8h	D1h	08h				
Fan 6 LED	E9h	D1h	08h				

Sensor Name	Sensor Number	Sensor Type	Sensor Reading Type	Logged Assertions	Logged De-Assertions	Event or Error	Repair Actions
Fan 7 LED	EAh	D1h	08h				
Fan 8 LED	EBh	D1h	08h				
DIMM 1 LED	F0h	D1h	08h				
DIMM 2 LED	F1h	D1h	08h				
DIMM 3 LED	F2h	D1h	08h				
DIMM 4 LED	F3h	D1h	08h				
DIMM 5 LED	F4h	D1h	08h				
DIMM 6 LED	F5h	D1h	08h				
DIMM 7 LED	F6h	D1h	08h				
DIMM 8 LED	F7h	D1h	08h				
DIMM 9 LED	F8h	D1h	08h				
DIMM 10 LED	F9h	D1h	08h				
DIMM 11 LED	FAh	D1h	08h				
DIMM 12 LED	FBh	D1h	08h				
DIMM 13 LED	FCh	D1h	08h				
DIMM 14 LED	FDh	D1h	08h				
DIMM 15 LED	FEh	D1h	08h				
DIMM 16 LED	FFh	D1h	08h				
CPU Card LED		D1h	08h				
PCIX Card Fault LED		D1h	08h				
PCI Adapter LED		D1h	08h				
CPU Card Fault LED		D1h	08h				
Super I/O Card Fault LED		D1h	08h				
See Event Log LED		D1h	08h				
Link 1 LED		D1h	08h				
Link 2 LED		D1h	08h				
Link 3 LED		D1h	08h				
Nonredundant LED		D1h	08h				
RAID Card LED		D1h	08h				
Memory Card 1 DIMM LED		D1h	08h				
Memory Card 2 DIMM LED		D1h	08h				
Memory Card 3 DIMM LED		D1h	08h				
Memory Card 4 DIMM LED		D1h	08h				
Memory Card 1 LED (not DIMM)		D1h	08h				
Memory Card 2 LED (not DIMM)		D1h	08h				
Memory Card 3 LED (not DIMM)		D1h	08h				
Memory Card 4 LED (not DIMM)		D1h	08h				
RAID Card Rear LED		D1h	08h				
PCIX Card Rear LED		D1h	08h				
IO Card Rear LED		D1h	08h				

3 OEM Sensor Entries in BMC

Sensor Type	Sensor Type Code	Byte Definitions/Description
OEM POST with Time Stamp	0xC0	Byte 11 POST Error / Event Type 0x00 POST PCI POST Event/Error 0x01 POST PCI Processor Event / Error 0x02 POST Memory Event / Error 0x03 POST Scalability Event / Error 0x04 POST Bus Event / Error 0x05 POST Chipset Event / Error Byte 12-15 Defined per Error / Event Type in below tables Byte 16 Revision Number Format
OEM SMI Handler with Time Stamp	0xC1	Byte 11 SMI Error / Event Type 0x00 SMI PCI Event / Error 0x01 SMI Processor Event / Error 0x02 SMI Memory Event / Error 0x03 SMI Scalability Event / Error 0x04 SMI Bus Event / Error 0x05 SMI Chipset Event / Error Byte 12-15 Defined per Error / Event Type in below tables Byte 16 Revision Number Format
OEM POST No Time Stamp	0xE0	Byte 4 POST Error / Event Type 0x00 POST PCI POST Event/Error 0x01 POST PCI Processor Event 0x02 POST Memory Error 0x03 POST Scalability Event 0x04 POST Bus Event 0x05 POST Chipset Event Byte 6-15 Defined per Error/Event Type in below tables Byte 16 Revision Number Format
OEM SMI Handler No Time Stamp	0xE1	Byte 4 SMI Error / Event Type 0x00 SMI PCI Event / Error 0x01 SMI Processor Event / Error 0x02 SMI Memory Event / Error 0x03 SMI Scalability Event / Error 0x04 SMI Bus Event / Error 0x05 SMI Chipset Event / Error

5.19 POST OEM SEL Formats with Time Stamp

5.19.1 POST PCI Event / Error SEL Format

Byte	Description
11	0x00 POST PCI Event / Error
12	Error Type 0x00 PCI Event/Error occurred. Next non-timestamped OEM SEL entry will contain details of the specific PCI event/error.
13:15	Reserved
16	Revision Number = 0x00

Figure 49- POST PCI Event / Error SEL Format

5.19.2 POST Processor Event / Error SEL Format

Byte	Description
11	0x01 POST Processor Event / Error
12	Error Type 0x00 Processor Event/Error occurred. Next non-timestamped OEM SEL entry will contain details of the specific Processor event/error.
13:15	Reserved
16	Revision Number = 0x00

Figure 50- POST Processor Event / Error SEL Format

5.19.3 Memory Event / Error SEL Format

Byte	Description
11	0x02 POST Memory Event / Error
12	Error Type 0x00 Memory Event/Error occurred. Next non-timestamped OEM SEL entry will contain details of the specific Memory event/error.

13:15	Reserved
16	Revision Number = 0x00

Figure 51- POST Memory Event / Error SEL Format

5.20 SMI OEM SEL Formats with Time Stamp

No OEM messages are defined at this time.

5.21 POST OEM SEL Formats without Time Stamp

5.21.1 POST PCI Event / Error SEL Format

Byte	Description
4	0x00 POST PCI Event / Error
5	Error Type 0x00 Device OK 0x01 Required ROM space not available 0x02 Required IO space not available 0x03 Required memory not available 0x04 Required memory below 1MB not available 0x05 ROM checksum failed 0x06 BIST failed 0x07 Planar device missing or disabled by user 0x08 PCI device has an invalid PCI configuration space header 0x09 Specific PCI Device added (details to follow) 0x0A Specific PCI Device removed (details to follow) 0x0B Device title for removed devices 0x0C Device title for added devices 0x0D Requested resources not available 0x0E Title for added devices 0x0F Vendor ID sub-message 0x10 Device ID sub-message 0x11 Previous slot sub-message 0x12 Slot sub-message 0x13 Planar video disabled due to add in video card 0x14 Partial disable value 0x15 Title for partial disable 0x16 33Mhz dev on 66Mhz bus 0x17 Details for 33mhz card on 66mhz bus 0x18 Merge cable missing 0x19 Node1 to Node2 cable missing

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	0x1A Node1 to Node3 cable missing 0x1B Node2 to Node3 cable missing 0x1C Nodes could not merge 0x1D no 8 way SMP cable
6	Chassis Number (0xFF if not applicable)
7	Slot Number (0xFF if not applicable)
8	Bus Number (0xFF if not applicable)
9	Device ID (MSB) (0xFF if not applicable)
10	Device ID (LSB) (0xFF if not applicable)
11	Vendor ID (MSB) (0xFF if not applicable)
12	Vendor ID (LSB) (0xFF if not applicable)
13	Reserved
14	Reserved
15	Reserved
16	Revision Number = 0x00

Figure 52- POST P CI Event / Error SEL Format

5.21.2 POST Processor Event / Error SEL Format

Byte	Description
4	0x01 POST Processor Event / Error
5	Error Type 0x00 Processor Failed BIST 0x01 Unable to Apply Microcode (Patch) Update 0x02 POST Does Not Support Current Stepping of Processor 0x03 CPU Mismatch Detected
6	Chassis Number (0x00 if not applicable)
7	Processor Number (0x00 if not applicable)
8	Reserved
9	Reserved
10	Reserved
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	Reserved
16	Revision Number = 0x00

Figure 53- POST Processor Event / Error SEL Format

5.21.3 Uncorrectable Memory Event / Error SEL Format

Byte	Description
4	0x02 Memory Event / Error
5	Event Type 0x00 Hurricane Uncorrectable memory error occurred for Zeus/Maia/Hermes
6	Chassis (0 if not applicable)
7	Memory Card (1-4)
8	Memory DIMM (1-4)
9	Reserved
10	Reserved
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	Reserved
16	Revision Number = 0x00

Figure 54- POST Memory Event / Error SEL Format

5.21.4 Correctable Memory Event / Error SEL Format

Byte	Description
4	0x02 Memory Event / Error
5	Event Type 0x01 Hurricane Correctable memory threshold occurred for Zeus/Maia/Hermes
6	Chassis (0 if not applicable)
7	Memory Card (1-4)
8	Memory DIMM (1-4)
9	Failing Symbol
10	Reserved
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	Reserved
16	Revision Number = 0x00

Figure 55- POST Memory Event / Error SEL Format

5.21.5 Memory DIMM Event / Error SEL Format

Byte	Description
4	0x02 Memory Event / Error
5	Event Type

	0x02 DIMM Status
6	0x00 DIMM Enabled 0x01 DIMM Disabled – Failed ECC Test 0x02 DIMM Disabled – Failed POST/BIOS Memory Test 0x03 DIMM Disabled – Non-supported memory device 0x04 DIMM Disabled – Non matching or missing DIMMs
7	Chassis (0 if not applicable)
8	Memory Card 1-N (0 if not applicable)
9	Memory DIMM 1-N (0 if not applicable)
10	Reserved
11	Reserved
12	Reserved
13	Reserved
14	Reserved
15	Reserved
16	Revision Number = 0x00

Figure 56- POST Memory Event / Error SEL Format

5.22 SMI OEM SEL Formats without Time Stamp

5.22.1 SMI PCI Event / Error SEL Format

Byte	Description
4	0x00 SMI PCI Event / Error
5	Error Type 0x01-0x0F PCI Standard Error Messages for PCI Devices & Primary Interface of PCI-to-PCI Bridge 0x00 Unknown SERR/PERR Detected on PCI Bus 0x01 SERR: Address or Special Cycle DPE 0x02 PERR: Master Read Parity Error 0x03 SERR: Received Target Abort 0x04 PERR: Master Write Parity Error 0x05 SERR: Device Signaled SERR 0x06 PERR: Slave Signaled Parity Error 0x07 SERR: Signaled Target Abort 0x08 PERR: Additional Correctable ECC Error 0x09 SERR: Received Master Abort 0x0A PERR: Additional Uncorrectable ECC Error 0x0B SERR: Split Completion Discarded 0x0C PERR: Correctable ECC Error 0x0D SERR: Unexpected Split Completion 0x0E PERR: Uncorrectable ECC Error 0x0F SERR: Received Split Completion Error Message 0x10 Reserved 0x11-0x1F PCI Standard Error Messages for Secondary Interface of PCI-to-PCI

	Bridge 0x11 SERR: Address or Special Cycle DPE on secondary side of PCI-PCI Bridge 0x12 PERR: Master Read Parity Error on secondary side of PCI-PCI Bridge 0x13 SERR: Received Target Abort on secondary side of PCI-PCI Bridge 0x14 PERR: Master Write Parity Error on secondary side of PCI-PCI Bridge 0x15 SERR: Device Signaled SERR on secondary side of PCI-PCI Bridge 0x16 PERR: Slave Signaled Parity Error on secondary side of PCI-PCI Bridge 0x17 SERR: Signaled Target Abort on secondary side of PCI-PCI Bridge 0x18 PERR: Additional Correctable ECC Error on secondary side of PCI-PCI Bridge 0x19 SERR: Received Master Abort on secondary side of PCI-PCI Bridge 0x1A PERR: Additional Uncorrectable ECC Error on secondary side of PCI-PCI Bridge 0x1B SERR: Split Completion Discarded on secondary side of PCI-PCI Bridge 0x1C PERR: Correctable ECC Error on secondary side of PCI-PCI Bridge 0x1D SERR: Unexpected Split Completion on secondary side of PCI-PCI Bridge 0x1E PERR: Uncorrectable ECC Error on secondary side of PCI-PCI Bridge 0x1F SERR: Received Split Completion on secondary side of PCI-PCI Bridge 0x20-0x3F PCI Target Error Messages for PCI Host Bridge (Calgary) 0x20 PERR: PCI ECC Error (Corrected) 0x21 SERR: PCI Bus Address Parity Error 0x22 PERR: PCI Bus Data Parity Error 0x23 SERR: SERR# Asserted 0x24 PERR: PERR Received by Calgary on a PCIX Split Completion 0x25 SERR: Invalid Address 0x26 Reserved 0x27 SERR: TCE Extent Error 0x28 Reserved 0x29 SERR: Page Fault 0x2A Reserved 0x2B SERR: Unauthorized Access 0x2C Reserved 0x2D SERR: Parity Error in DMA Read Data Buffer 0x2E Reserved 0x2F SERR: PCI Bus Time Out 0x30 Reserved 0x31 SERR: DMA Delayed Read Timeout 0x32 Reserved 0x33 SERR: Internal Error on PCIX Split Completion 0x34 Reserved 0x35 SERR: DMA Read Reply (RIO) Timeout 0x36 Reserved 0x37 SERR: Internal RAM Error on DMA Write 0x38 Reserved 0x39 SERR: MVE Valid Bit Off 0x3A Reserved 0x3B SERR: MVE Index Invalid 0x3C Reserved 0x3D Reserved 0x3E Reserved 0x3F Reserved 0x40-0x5F PCI Master Error Messages for PCI Host Bridge (Calgary) 0x40 PERR: ECC Error (Corrected) 0x41 SERR: PCI Bus Address Parity Error

	0x42 PERR: PCI Bus Data Parity Error 0x43 SERR: SERR# Detected 0x44 Reserved 0x45 SERR: No DEVSEL# 0x46 Reserved 0x47 SERR: Bus Time Out 0x48 Reserved 0x49 SERR: Retry Count Expired 0x4A Reserved 0x4B SERR: Target-Abort 0x4C Reserved 0x4D SERR: Invalid Size 0x4E Reserved 0x4F SERR: Access Not Enabled 0x50 Reserved 0x51 SERR: Split Response Received 0x52 Reserved 0x53 SERR: PCIX Split Completion Error Status Received 0x54 Reserved 0x55 SERR: Unexpected PCIX Split Completion Received 0x56 Reserved 0x57 SERR: PCIX Split Completion Timeout 0x58 Reserved 0x59 SERR: Recoverable Error Summary Bit 0x5A Reserved 0x5B SERR: CSR Error Summary Bit 0x5C Reserved 0x5D SERR: Internal RAM Error on MMIO Load 0x5E Reserved 0x5F Reserved 0x60-0x7F PCI Machine Check Messages for PCI Host Bridge (Calgary) 0x60 Reserved 0x61 SERR: Bad Command 0x62 Reserved 0x63 SERR: Length Field Invalid 0x64 Reserved 0x65 SERR: Load Greater Than 8 & No Write Buffer Enabled 0x66 Reserved 0x67 SERR: PCIX Discontiguous Byte Enable Error 0x68 Reserved 0x69 SERR: 4K Address Boundary Crossing Error 0x6A Reserved 0x6B SERR: Store Wrap State Machine Check 0x6C Reserved 0x6D SERR: Target State Machine Check 0x6E Reserved 0x6F SERR: Invalid Transaction PM/DW 0x70 Reserved 0x71 SERR: Invalid Transaction PM/DR 0x72 Reserved 0x73 SERR: Invalid Transaction PS/DW 0x74 Reserved

	0x75 SERR: DMA Write Command FIFO Parity Error 0x76 Reserved 0x77 Reserved 0x78 Reserved 0x79 Reserved 0x7A Reserved 0x7B Reserved 0x7C Reserved 0x7D Reserved 0x7E Reserved 0x7F Reserved 0x80-0xFF Reserved
6	Chassis Number (0x00 if not applicable)
7	Slot Number
8	Bus Number
9	Device ID (LSB)
10	Device ID (MSB)
11	Vendor ID (LSB)
12	Vendor ID (MSB)
13	Status Register (LSB)
14	Status Register (MSB)
15	[7:3] PCI Device Number [2:0] PCI Function Number
16	Revision Number = 0x00

Figure 57- SMI PCI Event / Error SEL Format

5.22.2 SMI Processor Event / Error SEL Format

Byte	Description
4	0x01 SMI Processor Event / Error
5	0x00 Data A
6	Reserved
7	Reserved
8 - 9	Bank
10 – 11	APIC ID
12 – 15	CK4
16	Revision Number = 0x00

Figure 58-SMI MCA Data A SEL Format

Byte	Description
4	0x01 SMI Processor Event / Error
5	0x01 Data B1
6	Reserved
7	Reserved
8 – 11	Address high

Byte	Description
4	0x02 SMI Memory Event / Error
5	0x00 Sparing Event
6	0x00 Sparing Start 1 0x02 Sparing Done 1
7	Failed Row
8	Spare Row
9 – 15	Reserved
16	Revision Number = 0x00

Figure 63-SMI Sparing 1 SEL Format

Byte	Description
4	0x02 SMI Memory Event / Error
5	0x00 Sparing Event
6	0x01 Sparing Start 2 0x03 Sparing Done 2
7	Failed Row 1
8	Failed Row 2
9	Spare Row 1
10	Spare Row 2
11- 15	Reserved
16	Revision Number = 0x00

Figure 64-SMI Sparing 2 SEL Format

Byte	Description
4	0x02 SMI Memory Event / Error
5	0x01 Memory Mirroring Failover Occurred (Running from mirrored memory image)
6-15	Reserved
16	Revision Number = 0x00

Figure 65-SMI Mirroring SEL Format

5.22.4 SMI Bus Event / Error SEL Format

Byte	Description
4	0x04 SMI Bus Event / Error
5	Bus Type 0x00 FSB
6	0x00 FSB A Fatal

	0x01 FSB A NonFatal 0x02 FSB B Fatal 0x03 FSB B NonFatal
7 – 8	FSB FERR or NERR or Zero
9 – 15	Reserved
16	Revision Number = 0x00

Figure 66-SMI Front Side Bus Event SEL Format

5.22.5 SMI Chipset Event / Error SEL Format

Byte	Description
4	0x05 = SMI Chipset Event / Error
5	Chipset Type 00h = Lindenhurst Chipset Event
6	0x02 HiFatal 0x03 HiNonFatal
7	Hi FERR or NERR
8 – 15	Reserved
16	Revision Number = 0x00

Figure 67-SMI Hub Interface Error SEL Format