

BIOS Release Notes

TITLE

SUBJECT: MS33-AR1 BIOS Release Notes version [R21](#)

System: [MS33-AR1-000](#)

About This Release

Build Date: [2026/03/19](#)

BIOS Checksum: [0xA484F3EE](#) (16M), [0x8C84A131](#) (64M)

Release Owner: kimberly.lin

BIOS Components/Contents

Processor stepping(s) supported: Intel® Sapphire Rapids-SP/Emerald Rapids-SP processor

System hardware configurations supported: MS33-AR1

Microcode updates versions:

CPUID	Family	Microcode Update ID
806f3	SPR D0	0d0004b1
806f8	SPR HBM B*	2c000421
806f8	SPR XCC E* / MCC S* / EE LCC U*	2b000670
c06f2	EMR XCC A1 / MCC R1	210002e0

IPMI support:

AMI Kernel version: [Gbt_Kernel_114_06](#)

Intel CSI/MRC Package version: [116.D10](#)

SPI Descriptor version: [06.01.04.215.0](#)

OPROM version :

OPROM	Version
AST2600 VGA	1.13.03
INTEL RAID PACKAGE	RSTe 9.0.0.2018

Installation Notes

BIOS Release Notes

IMPORTANT NOTES:

1. Please extract the MS33-AR1_R21.zip to a bootable diskette that use FAT/FAT32 format

BIOS UPDATE INSTRUCTIONS FOR EFI Shell:

1. Insert USB flash drive to system for BIOS upgrade.
2. Power on system and boot to Build-In Shell.
3. Enter your USB filesystem, like "fs0:" or "fsx:", "x" is your USB filesystem number
4. Execute F.nsh for bios update
5. After bios flash finish, system must Power-Off to have the changes take effect.

BIOS UPDATE INSTRUCTIONS FOR Windows:

1. Insert bios update USB flash drive.
2. Use Command Shell.
3. Enter \Tool\Win32 and execute f.bat for Windows 32bit.
Or
Enter \Tool\Win64 and execute f.bat for Windows 64bit.
4. After bios flash finish, system must Power-Off to have the changes take effect.

BIOS UPDATE FOR Easy BIOS Refresh:

1. The system supports remotely update BIOS if BMC existent.
2. Please download the Easy BIOS Refresh User Guide from Gigabyte website, target system support page.

BIOS Version CHECK INSTRUCTIONS:

1. Power on system and press during POST
2. The bios version shows on the first main page

Known Issues/Workarounds

Issues fixed in this version

R21

1. [Feature] Update RC 116.D10 (EagleStream BKC IPU 2026.2 WW07_2026).
2. [Feature] Update SPR Microcode : SPR Production E* / S* Step: Step: m_87_806f8_2b000670.pdb; SPR HBM Production B* Step: m_10_806f8_2c000421.pdb;
3. [Feature] Update EMR Microcode : EMR Production A1 / R1 Step: Step: m_87_c06f2_210002e0.pdb;
4. [Feature] Update TDX Module to TDX_1.5.28.04.989.
5. [Feature] Include INTEL-SA-01419 for CVE-2025-31356.

BIOS Release Notes

R20

1. [Bug Fix] Fix GBTGSI Build Error.
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R19

1. [Feature] Update RC 116.D10 (EagleStream BKC IPU 2026.1 WW45_2025).
 2. [Feature] Update SPR Microcode : SPR Production E* / S* Step:
m_87_806f8_2b000661.pdb; SPR HBM Production B* Step: m_10_806f8_2c000421.pdb;
 3. [Feature] Update EMR Microcode : EMR Production A1 / R1 Step:
m_87_c06f2_210002d3.pdb;
 4. [Feature] Update SPS to SPS_E5_06.01.04.215.0.
 5. [Feature] Update TDX Module to TDX_1.5.24.04.943.
 6. [Feature] Include INTEL-SA-01396 for CVE-2025-31648.8
 7. [Feature] Include INTEL-SA-01397 for CVE-2025-30513/CVE-2025-32007/CVE-2025-32467/CVE-2025-27572/CVE-2025-27940/CVE-2025-31944.
 8. [Feature] Include INTEL-SA-01413 for CVE-2025-35991.
 9. [Feature] Include AMI SA50320 for CVE-2022-23932.
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R18

1. [Feature] Update RC 115.D14 (EagleStream BKC IPU 2025.4 WW33_2025).
 2. [Feature] Update SPR Microcode : SPR Production E* / S* Step:
m_87_806f8_2b000650.pdb; SPR HBM Production B* Step: m_10_806f8_2c000410.pdb;
 3. [Feature] Update EMR Microcode : EMR Production A1 / R1 Step:
m_87_c06f2_210002c0.pdb;
 4. [Feature] Update SPS to SPS_E5_06.01.04.204.0.
 5. [Feature] Update TDX Module to TDX_1.5.20.08.920.
 6. [Feature] Include INTEL-SA-01314 for CVE-2025-22885.
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R17

1. [Feature] Include AMI SA50315 for CVE-2025-3052.
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R16

1. [Feature] Update RC 115.D14 (EagleStream BKC IPU 2025.3 WW21_2025).
2. [Feature] Update SPR Microcode : SPR Production E* / S* Step:
m_87_806f8_2b000643.pdb; SPR HBM Production B* Step: m_10_806f8_2c000401.pdb;
3. [Feature] Update SPS to SPS_E5_06.01.04.203.0.
4. [Feature] Update RSTe/VROC UEFI driver to v9.1.1.1002.
5. [Feature] Update TDX Module to TDX_1.5.16.00.869.
6. [Feature] Include INTEL-SA-01234 for CVE-2025-20064/CVE-2025-20027/CVE-2025-20028/CVE-2025-20105/CVE-2025-20068/CVE-2025-20073.

BIOS Release Notes

7. [Feature] Include INTEL-SA-01280 for CVE-2025-20067/CVE-2025-22392.
 8. [Feature] Include INTEL-SA-01312 for CVE-2025-22853/CVE-2025-21096/CVE-2025-20613
 9. [Feature] Include INTEL-SA-01313 for CVE-2025-21090/CVE-2025-24305/CVE-2025-20053.
 10. [Feature] Include AMI SA50306 for CVE-2024-13176.
 11. [Feature] Include AMI SA50300 for CVE-2024-7344.
 12. [Feature] Include AMI SA50288 for CVE-2023-52353/CVE-2024-9143.
 13. [Feature] Include AMI SA50232.3 for CVE-2023-45229/CVE-2023-45230/CVE-2023-45231/CVE-2023-45232/CVE-2023-45233/CVE-2023-45234/CVE-2023-45235.
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R15

1. [Feature] Update EMR Microcode : EMR Production A* / R* Step: Step: m_87_c06f2_210002b3.pdb;
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R14

1. [Feature] Fine tune some BIOS setup item.
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R13

1. [Feature] Update RC 114.D30 (EagleStream IPU 2025.2 BKC WW10_2025).
 2. [Feature] Update EMR Microcode : EMR Production A* / R* Step: Step: m_87_c06f2_210002a7.pdb;
 3. [Feature] Update SPR Microcode : SPR Production E* / S* Step: Step: m_87_806f8_2b000639.pdb; SPR HBM Production B* Step: m_10_806f8_2c0003f7.pdb;
 4. [Feature] Update SPS to SPS_E5_06.01.04.089.0.
 5. [Feature] Update RSTe/VROC UEFI driver to v9.0.0.2018.
 6. [Feature] Update TDX Seamloader to TDX-SEAMLDR_1.5.02.00.
 7. [Feature] Update TDX Module to TDX_1.5.13.00.864.
 8. [Feature] Include INTEL-SA-01244 for CVE-2025-20054/CVE-2025-20103.
 9. [Feature] Include INTEL-SA-01245 for CVE-2025-20044.
 10. [Feature] Include INTEL-SA-01247 for CVE-2024-45332.
 11. [Feature] Include INTEL-SA-01249 for CVE-2025-20109.
 12. [Feature] Include AMI SA50286 for CVE-2024-42446.
 13. [Feature] Include AMI SA50290 for CVE-2024-38796.
 14. [Feature] Include AMI SA50292 for CVE-2023-6237/CVE-2024-5535/CVE-2024-6119.
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R12

1. [Feature] Fine tune BIOS setup item.
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R11

1. [Feature] Fine tune BIOS setup item default.
2. [Feature] Improve KCS protocol.

BIOS Release Notes

3. [Feature] Support Microsoft Option ROM UEFI CA 2023 for Secure Boot.
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R10

1. [Feature] Fine-tune Redfish display content.
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R09

1. [Feature] Update RC 113.D55 (EagleStream uPLR3 BKC 2024 WW37).
 2. [Feature] Update EMR Microcode : EMR Production A* / R* Step:
m_87_c06f2_21000291.pdb;
 3. [Feature] Update SPR Microcode : SPR Production E* / S* Step:
m_87_806f8_2b000620.pdb;SPR HBM Production B* Step: m_10_806f8_2c0003e0.pdb;
 4. [Feature] Include INTEL-SA-01139 for CVE-2024-31157/CVE-2024-28047/CVE-2024-39279.
 5. [Feature] Include INTEL-SA-01166 for CVE-2024-31068.
 6. [Feature] Include INTEL-SA-01194 for CVE-2024-37020.
 7. [Feature] Include INTEL-SA-01120 for CVE-2024-25571.
 8. [Feature] Include INTEL-SA-01198 for CVE-2024-21859/CVE-2024-31155.
 9. [Feature] Include INTEL-SA-01152 for CVE-2024-26021/CVE-2024-30211.
 10. [Feature] Include INTEL-SA-01196 for CVE-2024-36242.
 11. [Feature] Include INTEL-SA-01192 for CVE-2024-33607.
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R08

1. [Feature] Update RC 111.D23 (EagleStream uPLR2 BKC 2024 WW30).
 2. [Feature] Update EMR Microcode : EMR Production A* / R* Step:
m_87_c06f2_21000283.pdb;
 3. [Feature] Update SPR Microcode : SPR Production E* / S* Step:
m_87_806f8_2b000603.pdb;SPR HBM Production B* Step: m_10_806f8_2c0003d3.pdb;
 4. [Feature] Update UEFI VROC to VROC v8.6.0.1136.
 5. [Feature] Update TDX Module to TDX_1.5.06.00.744
 6. [Bug Fix] Include INTEL-SA-01097 for CVE-2024-24968
 7. [Bug Fix] Include INTEL-SA-01103 for CVE-2024-23984.
 8. [Bug Fix] Include INTEL-SA-01079 for CVE-2024-21820/CVE-2024-23918.
 9. [Bug Fix] Include INTEL-SA-01071 for CVE-2024-21829/CVE-2024-21781/CVE-2024-23599.
 10. [Bug Fix] Include INTEL-SA-01085 for CVE-2024-25565.
 11. [Bug Fix] Include INTEL-SA-01101 for CVE-2024-21853.
 12. [Bug Fix] Include INTEL-SA-01099 for CVE-2024-27457.
 13. [Bug Fix] Include INTEL-SA-01111 for CVE-2024-22185/CVE-2024-24985.
 14. [Bug Fix] Include INTEL-SA-01076 for CVE-2024-21850.
 15. [Bug Fix] Include AMI SA50158 for CWE-269.
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R07

BIOS Release Notes

1. [Feature] Update RC 109.D34 (EagleStream uPLR1 OOB BKC 2024).
 2. [Feature] Update EMR Microcode : EMR Production A1/R1-Stepping:m_87_c06f2_21000240.pdb;
 3. [Feature] Update SPR Microcode : SPR Production E-Stepping:m_87_806f8_2b0005d1.pdb;SPR HBM Production B-Stepping:m_10_806f8_2c0003a1.pdb;
 4. [Feature] Fine tune BMC LAN IPv6 configuration page.
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R06

1. [Feature] Fine tune Intel TDX related item.
 2. [Feature] Fine tune BMC IPv6 and IPv4 Network.
 3. [Feature] Include AMI SA50248 solution for CWE-119.
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R05

1. [Feature] Update RC 109.D34 (EagleStream uPLR1 BKC 2024 WW12).
 2. [Feature] Update EMR Microcode : EMR Production A1/R1-Stepping:m_87_c06f2_21000230.pdb;
 3. [Feature] Update SPR Microcode : SPR Production E-Stepping:m_87_806f8_2b0005c0.pdb;SPR HBM Production B-Stepping:m_10_806f8_2c000390.pdb;
 4. [Feature] Update SPS FW to SPS_E5_06.01.04.047.0.
 5. [Feature] Update BIOS ACM / SINT to v1.1.A.
 6. [Feature] Update TDX Module to TDX_1.5.05.46.698.
 7. [Feature] Include INTEL-TA-01036 for CVE-2023-45745/CVE-2023-47855.
 8. [Feature] Include AMI SA50232 for CVE-2023-45236/CVE-2023-45237.
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R04

1. [Bug Fix] Fix install CMT4032 can't downgrade to Gen3.
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R03

1. [Feature] Update RC 1752.P05 (EagleStream UMR1 BKC 2024 WW05).
2. [Feature] Update EMR Microcode : No update.
3. [Feature] Update SPR Microcode : SPR Production E-Stepping:m_87_806f8_2b000590.pdb;SPR HBM Production B-Stepping:m_10_806f8_2c000360.pdb;
4. [Feature] Add AMI SA50218 for below CVE :
CVE-2023-45229
CVE-2023-45230
CVE-2023-45231
CVE-2023-45232

BIOS Release Notes

CVE-2023-45233

CVE-2023-45234

CVE-2023-45235

5. [Feature] Add AMI SA50229 for CVE-2023-3817 and CVE-2023-2650.

6. [Feature] Add AMI SA50236 for CVE-2023-5678.

R02

1. [Feature] Update RC 107.D52 (EagleStream PV BKC 2023 WW49).

2. [Feature] Update EMR Microcode : EMR A0-Stepping: m_87_c06f2_a1000200.pdb ; EMR Production A0-Stepping:Stepping:m_87_c06f2_21000200.pdb;

3. [Feature] Add AMI SA50216 solution for CVE-2023-39539 and CVE-2023-39538.

R01

1. [Feature] Update RC 107.D20 (EagleStream BKC 2023 WW45).

2. [Feature] Update EMR Microcode : EMR A0-Stepping: m_87_c06f2_a10001d1.pdb .pdb ; EMR Production A0-Stepping:m_87_c06f2_210001B0.pdb; SPR Production E-Stepping:m_87_806f8_2b000571.pdb;SPR HBM Production B-Stepping:m_87_806f8_2c000351.pdb;

3. [Feature] Update SPS to SPS_E5_06.01.04.005.0.

4. [Feature] Update RSTe VROC driver to v8.5.0.1096.

T07

1. [Feature] Update RC 105.D74 (EagleStream BKC 2023 WW41).

2. [Feature] Update EMR Microcode : EMR A0-Stepping: m_87_c06f2_a1000190.pdb ; EMR Production A0-Stepping:m_87_c06f2_21000190.pdb; SPR Production E-Stepping:m_87_806f8_2b000541.pdb;SPR HBM Production B-Stepping:m_87_806f8_2c000321.pdb;

3. [Feature] Update SPS to SPS_E5_06.01.04.003.0.

4. [Feature] Update AST2600 vga/dp driver to 1.13.03 version.

T06

1. [Feature] Base on 2023 WW37 BKC release PC version BIOS.

T05

1. [Feature] Update RC 105.D74 (EagleStream BKC 2023 WW37).

2. [Feature] Update EMR Microcode : EMR A0-Stepping: m_87_c06f2_a1000161.pdb ; EMR Production A0-Stepping:m_87_c06f2_21000161.pdb;

T04

1. [Feature] Update RC 105.D48 (EagleStream BKC 2023 WW35).

BIOS Release Notes

2. [Feature] Update EMR Microcode : EMR A0-Stepping: m_87_c06f2_a1000160.pdb ; EMR Production A0-Stepping:m_87_c06f2_21000160.pdb;
 3. [Feature] Update VROC driver to v8.5.0.1074
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T03

1. [Feature] Update RC 105.D20 (EagleStream BKC 2023 WW33).
 2. [Feature] Update EMR Microcode : EMR A0-Stepping: m_87_c06f2_a1000150.pdb ; EMR Production A0-Stepping:m_87_c06f2_21000140.pdb;
 3. [Feature] Update EMR Microcode : EMR A0-Stepping: m_87_c06f2_a1000150.pdb ; EMR Production A0-Stepping:m_87_c06f2_21000140.pdb;
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T02

1. [Feature] Update RC 103.D70 (EagleStream BKC 2023 WW27).
 2. [Feature] Update EMR Microcode : EMR A0-Stepping: m_87_c06f2_a1000100.pdb ; EMR Production A0-Stepping:m_87_c06f2_210000e0.pdb;
 3. [Feature] Update EMR SPS version to SPS_E5_06.01.02.048.0.
 4. [Feature] Update VROC driver to v8.5.0.1042.
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T01

1. [Feature] Update RC 102.D37 (EagleStream BKC 2023 WW21).
 2. [Feature] Update EMR Microcode : EMR A0-Stepping: EMR A0-Stepping: m_87_c06f2_a10000a0.pdb ; EMR Production A0-Stepping:m_87_c06f1_21000070.pdb;
 3. [Feature] Update EMR SPS version to SPS_E5_06.01.02.009.0.
 4. [Feature] Update VROC driver to v8.5.0.1020.
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