Realtek
Ameba Flash AVL (NOR Flash)

This document lists the NOR Flashes available on Ameba-DPlus/-Smart/-Lite/-D/-Z/-ZII platform.

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Realtek Semiconductor Corp.
No. 2, Innovation Road II, Hsinchu Science Park, Hsinchu 300, Taiwan
Tel.: +886-3-578-0211. Fax: +886-3-577-6047
www.realtek.com

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1 NOR Flash Test Notice

1.1 Disclaimer

Since Realtek finished the functional test with limited Flash samples provided by Flash vendors, Realtek cannot guarantee the probability that some functional problems may occur due to the limited samples, the not long enough test time, and the variation of different batches of Flash.

Also, Realtek is not responsible for the quality assurance of Flash. All about quality and reliability of the Flash in mass production, please request the related test reports from the corresponding Flash vendor to guarantee.

1.1 NOR Flash Level Standard

Level	Standard	Remark
3	This level includes the Flash which has passed the functional test, and with very rigorous test report provided by the certified third party/Flash vendor to ensure the stability of Flash.	Recommended
2	This level includes the Flash which has passed the functional test, and with test report provided partly by the certified third party/Flash vendor to ensure the stability of Flash, but the test standard in test report isn't rigorous.	Users must evaluate and verify the quality of Flash by themselves.
1	This level includes the Flash which has passed the function test, but with no test report provided by Flash vendor.	The stability of Flash cannot be guaranteed. Users must ask for test report from Flash vendor to ensure the stability of Flash, and evaluate & verify the quality of Flash by themselves.

1.2 NOR Flash Test Report List

When submitting the Flash AVL requirement, in addition to the Flash-related documentations, Flash test reports must be provided together to ensure that this Flash has been strictly tested. Flash test reports must include the following test items at least, whether they are provided by the certified third party or Flash vendor.

Priority	Test item	Mandatory	Flash test report
1	Human Body Model (HBM)	Yes	Must be issued by one of the following organizations: ● Certified third-party ● Flash vendor
2	Charge Device Model (CDM)	Yes	
3	Machine Model (MM)	Yes	
4	Latch-up	Yes	
5	High Temperature Operating Life (HTOL)	Yes	
6	High Temperature Storage Life (HTSL)	Yes	
7	Endurance	Yes	
8	Uncycled High Temperature Data Retention (UCHTDR)	Yes	
9	Post-cycling High Temperature Data Retention (PCHTDR)	Yes	
10	Low Temperature Data Retention (LTDR)	Yes	
11	Early Life Failure Rate (ELFR)	Yes	

12	Low Temperature Operating Life (LTOL)	Yes	
13	Non-Volatile Memory Cycling Endurance (NVCE)	Yes	
14	Electromagnetic Interference (EMI)/ Electromagnetic Compatibility (EMC)	Yes	
15	Endurance long run test report with high/low temperature and high/low voltage	No	Flash vendor
16	CP/FT test	No	
17	Compatibility report with different host	No	

NOTE

- *If the test reports with priority 1~14 are issued by the certified third-party, the corresponding Flash is qualified to be listed in level 3; otherwise, level 2 in advance.*
- *The test reports with priority 15~17 are optional, and can be issued by Flash vendor directly. With them, the corresponding Flash is qualified to be listed in level 3.*
- *The availability of the test reports will affect the final test results and Flash level.*

2 NOR Flash AVL

2.1 Ameba-DPlus

The following sections list the Flashes of different vendors that have passed the test on Ameba-DPlus platform. These Flashes are divided into three levels according to the Flash test result given by Realsil and the Flash test reports provided by the certified third-party or Flash vendor.

2.1.1 Level 3

Based on the performance and quality, the Flashes of level 3 are recommended.

None.

2.1.2 Level 2

All the Flashes of level 2 have passed the function test and the stability of them can be guaranteed, but you must evaluate and verify the quality of Flash by yourself. Refer to NOR Flash Level Standard.

2.1.2.1 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
GD25WQ64EWIG	0xC8	8MB	3.3V	4I/O	66MHz	Pass
GD25LQ32EDEG		4MB	1.8V	4I/O	104MHz	

2.1.2.2 XMC

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
XM25QH64D	0x20	8MB	3.3V	4I/O	104MHz	Pass
XM25QH128D		16MB	3.3V	4I/O	104MHz	Pass

2.1.2.3 Zbit

Part number	Flash ID	Density	Voltage	I/O	Max. clock	ameba_flashcfg.c file	Over erase
ZG25LQ32B	0x5E	4MB	1.8V	4I/O	104MHz	Add {0x5E, 0x000000FF, FlashClass2, 0x000043FC, NULL} in case2	Pass

2.1.2.4 Puya

Part number	Flash ID	Density	Voltage	I/O	Max. clock	ameba_flashcfg.c file	Over erase
PY25Q32HB	0x85	4MB	3.3V	4I/O	104MHz	Add {0x85, 0x000000FF, FlashClass1, 0x000043FC, NULL} in case2	Pass
PY25Q64HA		8MB	3.3V	4I/O	104MHz	-	
PY25Q128HA		16MB	3.3V	4I/O	104MHz	-	

2.1.2.5 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
W25Q64JV	0xEF	8MB	3.3V	4I/O	104MHz	Pass (when RCV is enabled)

NOTE

Before using W25Q64JV, the RCV function must be enabled (by setting SR bit[19] to 1). Otherwise, the "Over Erase" operation may fail.

2.2 Ameba-Lite

The following sections list the Flashes of different vendors that have passed the test on Ameba-Lite platform. These Flashes are divided into three levels according to the Flash test result given by Realsil and the Flash test reports provided by the certified third-party or Flash vendor.

2.2.1 Level 3

Based on the performance and quality, the Flashes of level 3 are recommended.

None.

2.2.2 Level 2

All the Flashes of level 2 have passed the function test and the stability of them can be guaranteed, but you must evaluate and verify the quality of Flash by yourself. Refer toF.

2.2.2.1 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
GD25Q64EWIG	0xC8	8MB	3.3V	4I/O	104MHz	Pass
GD25Q128ESIG		16MB	3.3V	4I/O	104MHz	
GD25Q128H		16MB	3.3V	4I/O	104MHz	

2.2.2.2 XMC

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
XM25QH128C	0x20	16MB	3.3V	4I/O	104MHz	Pass
XM25QH128D		16MB	3.3V	4I/O	104MHz	
XM25QH64C		8MB	3.3V	4I/O	104MHz	

2.2.2.3 XTX

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
XT25F128F	0x0B	16MB	3.3V	4I/O	104MHz	Pass
XT25F64FSSIGT		8MB	3.3V	4I/O	104MHz	
XT25F256B		32MB	3.3V	4I/O	104MHz	

2.2.2.4 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
W25Q64JVWIB1	0xEF	8MB	3.3V	4I/O	104MHz	Pass (when RCV is enabled)
W25Q32JVWIB1		4MB	3.3V	4I/O	104MHz	Pass

NOTE

Before using W25Q64JVWIB1, the RCV function must be enabled (by setting SR bit[19] to 1). Otherwise, the "Over Erase" operation may fail.

2.2.2.5 ISSI

Part number	Flash ID	Density	Voltage	I/O	Max. clock	ameba_flashcfg.c file	Over erase
IS25LP128	0x9D	16MB	3.3V	4I/O	104MHz	Add {0x9D, 0x000000FF, FlashClass3, 0x000043FC, NULL} in case2	Pass

2.2.2.6 MXIC

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
MX25L12833F	0xC2	16MB	3.3V	4I/O	84MHz	Pass

2.2.2.7 Puya

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
PY25Q128HA	0x85	16MB	3.3V	4I/O	104MHz	Pass

2.3 Ameba-Smart

The following sections list the Flashes of different vendors that have passed the test on Ameba-Smart platform. These Flashes are divided into three levels according to the Flash test result given by Realsil and the Flash test reports provided by the certified third-party or Flash vendor.

2.3.1 Level 3

Based on the performance and quality, the Flashes of level 3 are recommended.

None.

2.3.2 Level 2

All the Flashes of level 2 have passed the function test and the stability of them can be guaranteed, but you must evaluate and verify the quality of Flash by yourself. Refer to NOR Flash Level Standard.

NOTE

For 1M bytes memory, there is no need to test the 'over erase' item of the Flash.

2.3.2.1 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
GD25Q64EDIG	0xC8	8MB	3.3V	4I/O	104MHz	Pass

2.3.2.2 XMC

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
XM25QH64D	0x20	8MB	3.3V	4I/O	104MHz	Pass

2.3.2.3 Puya

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
PY25Q64HA	0x85	8MB	3.3V	4I/O	104MHz	Pass

2.3.2.4 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
W25Q256JVWB2	0xEF	32MB	3.3V	4I/O	104MHz	Pass
W25Q128JV	0xEF	16MB	3.3V	4I/O	104MHz	Pass (when RCV is enabled)

NOTE

Before using W25Q128JV, the RCV function must be enabled (by setting SR bit[19] to 1). Otherwise, the "Over Erase" operation may fail.

2.4 Ameba-D

The following sections list the Flashes of different vendors that have passed the test on Ameba-D platform. These Flashes are divided into three levels according to the Flash test result given by Realsil and the Flash test reports provided by the certified third-party or Flash vendor.

2.4.1 Level 3

Based on the performance and quality, the Flashes of level 3 are recommended.

None.

2.4.2 Level 2

All the Flashes of level 2 have passed the function test and the stability of them can be guaranteed, but you must evaluate and verify the quality of Flash by yourself. Refer to NOR Flash Level Standard.

NOTE

For 1M bytes memory, there is no need to test the 'over erase' item of the Flash.

2.4.2.1 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
GD25Q80CSIG	0xC8	1MB	3.3V	4I/O	104MHz	-
GD25Q16EEIGR		2MB	3.3V	4I/O	104MHz	Pass
GD25LQ16ETJGT		2MB	1.8V	4I/O	104MHz	
GD25Q32CSIG		4MB	3.3V	4I/O	104MHz	
GD25Q32ETIG		4MB	3.3V	4I/O	104MHz	
GD25Q64ESIG		8MB	3.3V	4I/O	104MHz	
GD25Q128ESIG		16MB	3.3V	4I/O	104MHz	
GD25WQ32ETIG		4MB	1.8V/3.3V	4I/O	66MHz	
GD25WQ16ETIGR		2MB	3.3V	4I/O	66MHz	
MD25D80DSIG	0x51	1MB	3.3V	1I/2O	80MHz	-
MD25Q32CTIG	0xC8	4MB	3.3V	4I/O	104MHz	Pass

2.4.2.2 XMC

Part number	Flash ID	Density	Voltage	I/O	Max. clock	rtl8721dlp_flashcfg.c file	Over erase
XM25QH64AHIG	0x20	8MB	3.3V	4I/O	75MHz	Modify case1 to {0x20, 0x000000FF, FlashClass4, 0x000000FC, NULL}	Pass
XM25QH128AHIG		16MB	3.3V	4I/O	75MHz		
XM25QH64BHIG		8MB	3.3V	4I/O	104MHz	Modify case1 to {0x20, 0x000000FF, FlashClass3, 0x000000FC, NULL}	
XM25QH128BHIG		16MB	3.3V	4I/O	104MHz		
XM25QH16CJIG		2MB	3.3V	4I/O	104MHz	Modify case1 to {0x20, 0x000000FF, FlashClass1, 0x000043FC, NULL}	
XM25QH32CHIG		4MB	3.3V	4I/O	104MHz		
XM25QH64CHIG		8MB	3.3V	4I/O	104MHz		
XM25QW32CJIG		4MB	1.8V/3.3V	4I/O	104MHz		

2.4.2.3 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
W25Q16JVSSIQ	0xEF	2MB	3.3V	4I/O	104MHz	Pass
W25Q32JVSSIQ		4MB	3.3V	4I/O	104MHz	
W25Q32JVUUIQ		4MB	3.3V	4I/O	104MHz	
W25Q128JVSIQ		16MB	3.3V	4I/O	104MHz	
W25Q64JVSSIQ		8MB	3.3V	4I/O	104MHz	Pass (when RCV is enabled)

NOTE

Before using W25Q64JVSSIQ, the RCV function must be enabled (by setting SR bit[19] to 1). Otherwise, the "Over Erase" operation may fail.

2.4.2.4 MXIC

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
MX25R1635FM2IH2	28C2	2MB	1.8V/3.3V	4I/O	80MHz	Pass
MX25R3235F		4MB	1.8V/3.3V	4I/O	80MHz	
MX25L3233FM2I-08G	0xC2	4MB	3.3V	4I/O	104MHz	
MX25L6433FM2I-08G		8MB	3.3V	4I/O	104MHz	
MX25L12833FM2I		16MB	3.3V	4I/O	84MHz	
MX25L25645GM2I		32MB	3.3V	4I/O	80MHz	

2.4.2.5 Boya

Part number	Flash ID	Density	Voltage	I/O	Max. clock	rtl8721dlp_flashcfg.c file	Over erase
BY25Q32BSSIG	0x68	4MB	3.3V	4I/O	104MHz	Modify case1 to {0x68, 0x000000FF, FlashClass2, 0x000043FC, NULL}	Pass
BY25Q32BSTIG		4MB	3.3V	4I/O	104MHz		
BY25Q64ASTIG		8MB	3.3V	4I/O	104MHz		

2.4.2.6 ISSI

Part number	Flash ID	Density	Voltage	I/O	Max. clock	rtl8721dlp_flashcfg.c file	Over erase
IS25LP016D	0x9D	2MB	3.3V	4I/O	104MHz	Add {0x9D, 0x000000FF, FlashClass3, 0x000000FC, NULL} in case2	Pass
IS25LP032D		4MB	3.3V	4I/O	104MHz		
IS25LP064D		8MB	3.3V	4I/O	90MHz		

2.4.2.7 Zbit

Part number	Flash ID	Density	Voltage	I/O	Max. clock	rtl8721dlp_flashcfg.c file	Over erase
ZB25VQ16ATIG	0x5E	2MB	3.3V	4I/O	104MHz	Add {0x5E, 0x000000FF, FlashClass2, 0x000043FC, NULL} in case2	Pass
ZB25VQ64ASIG		8MB	3.3V	4I/O	104MHz		
ZB25VQ128A		16MB	3.3V	4I/O	104MHz		
ZB25LQ32BTFG		4MB	1.8V	4I/O	104MHz		

2.4.2.8 HuaHong

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
BH25D16ASTIG	0x68	2MB	3.3V	1I/2O	104MHz	Pass

2.4.2.9 ESMT

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
EN25QH64A-104HIP	0x1C	8MB	3.3V	4I/O	104MHz	Pass
EN25QH32B		4MB	3.3V	4I/O	104MHz	

2.4.2.10 XTX

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
XT25F64F	0x0B	8MB	3.3V	4I/O	64MHz	Pass

2.4.2.11 TSINGTENG

Part number	Flash ID	Density	Voltage	I/O	Max. clock	rtl8721dlp_flashcfg.c file	Over erase
TH25Q-16HB-MSCI	0xEB	2MB	3.3V	4I/O	104MHz	Add {0xEB, 0x000000FF, FlashClass1, 0x000043FC, NULL} in case2	Pass
TH25Q-16HB-MSCK		2MB	3.3V	4I/O	104MHz		

2.4.2.12 Puya

Part number	Flash ID	Density	Voltage	I/O	Max. clock	rtl8721dlp_flashcfg.c file	Over erase
PY25Q128HA	0x85	16MB	3.3V	4I/O	104MHz	Add {0x85, 0x000000FF, FlashClass1, 0x000043FC, NULL} in case2	Pass
PY25Q32HB		4MB	3.3V	4I/O	104MHz		
PY25Q16HB		2MB	3.3V	4I/O	104MHz		

2.4.2.13 GT

Part number	Flash ID	Density	Voltage	I/O	Max. clock	rtl8721dlp_flashcfg.c file	Over erase
GT25Q16A-UGLI-TR	0xC4	2MB	3.3V	4I/O	104MHz	Add {0xC4, 0x000000FF, FlashClass2, 0x000043FC, NULL} in case2	Pass
GT25Q32A-UGLI-TR		4MB	3.3V	4I/O	104MHz		

NOTE

GT's Flash supports both 3.3V and 1.8V power supply, but Realtek only tested the performance of Flash under 3.3V power supply.

2.4.3 Level 1

All the Flashes of level 1 have only passed the function test, the stability of them cannot be guaranteed. Refer to NOR Flash Level Standard.

NOTE

The 'over erase' item of the listed Flashes below has not been tested.

2.4.3.1 MXIC

Part number	Flash ID	Density	Voltage	I/O	Max. clock
MX25L1633E	0xC2	2MB	3.3V	4I/O	85MHz
MX25L3236F		4MB	3.3V	4I/O	104MHz
MX25L6433F		8MB	3.3V	4I/O	104MHz
MX25L12845G		16MB	3.3V	4I/O	70MHz
MX25L1606E		2MB	3.3V	2O	80MHz
MX25V8006E		1MB	3.3V	2O	70MHz
MX25V1635F		2MB	3.3V	4I/O	80MHz
MX25V8035F		1MB	3.3V	4I/O	104MHz
KH25L8006EM2I-12G		1MB	3.3V	2O	80MHz
KH25L1606EM2I-12G		2MB	3.3V	2O	80MHz
MX25R1635FM1IL0		2MB	1.8V/3.3V	4I/O	80MHz

2.4.3.2 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock
W25Q80DV	0xEF	1MB	3.3V	4I/O	104MHz
W25Q16DV		2MB	3.3V	4I/O	104MHz
W25Q32FV		4MB	3.3V	4I/O	104MHz
W25R64FV		8MB	3.3V	4I/O	104MHz
W25R128FV		16MB	3.3V	4I/O	104MHz
W25Q16JVSNIQ		2MB	3.3V	4I/O	104MHz

2.4.3.3 Micron

Part number	Flash ID	Density	Voltage	I/O	Max. clock
N25Q032A13ESE40E	0x20	4MB	3.3V	4I/O	104MHz
N25Q064A13ESED0E		8MB	3.3V	4I/O	104MHz
N25Q128A		16MB	3.3V	4I/O	104MHz
N25Q00AA13GSF40F		128MB	3.3V	4I/O	104MHz

2.4.3.4 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. clock
GD25Q80C	0xC8	1MB	3.3V	4I/O	104MHz
GD25Q64C		8MB	3.3V	4I/O	104MHz
GD25Q128C		16MB	3.3V	4I/O	80MHz
MD25D80TIG	0x51	1MB	3.3V	2O	80MHz
MD25D80SIG		1MB	3.3V	2O	80MHz

2.4.3.5 ESMT

Part number	Flash ID	Density	Voltage	I/O	Max. clock
EN25QH16A	0x1C	2MB	3.3V	4I/O	104MHz
EN25QH16B (2A)		2MB	3.3V	4I/O	104MHz
EN25Q80B		1MB	3.3V	4I/O	104MHz
EN25Q80BY1HM		1MB	3.3V	4I/O	104MHz
EN25QH32B (2B)		4MB	3.3V	4I/O	104MHz

2.4.3.6 XTX

Part number	Flash ID	Density	Voltage	I/O	Max. clock
XT25F16BSOIGU	0x0B	2MB	3.3V	2O	104MHz
XT25F16BSSIGU		2MB	3.3V	2O	104MHz
XT25F08BSSIGU		1MB	3.3V	4I/O	104MHz
XT25F08BSOIGU		1MB	3.3V	4I/O	104MHz

2.4.3.7 Boya

Part number	Flash ID	Density	Voltage	I/O	Max. clock
BY25D16	0x68	2MB	3.3V	2O	104MHz

2.4.3.8 LRC

Part number	Flash ID	Density	Voltage	I/O	Max. clock
LR25D80SDG	0x68	1MB	3.3V	2O	104MHz
LR25D80SSG		1MB	3.3V	2O	104MHz
LR25D16SDG		2MB	3.3V	2O	104MHz
LR25D16SSG		2MB	3.3V	2O	104MHz

2.4.3.9 FT

Part number	Flash ID	Density	Voltage	I/O	Max. clock
FT25H08	0x0E	1MB	3.3V	4I/O	104MHz
FT25H16S-RB	0x0E	2MB	3.3V	4I/O	104MHz

2.4.3.10 FM

Part number	Flash ID	Density	Voltage	I/O	Max. clock
FM25Q64	0xA1	2MB	3.3V	4I/O	80MHz

2.5 Ameba-Z

The following sections list the Flashes of different vendors that have passed the test on Ameba-Z platform. These Flashes are divided into three levels according to the Flash test result given by Realsil and the Flash test reports provided by the certified third party or Flash vendor.

2.5.1 Level 3

Based on the performance and quality, the Flashes of level 3 are recommended.

None.

2.5.2 Level 2

All the Flashes of level 2 have passed the function test and the stability of them can be guaranteed, but you must evaluate and verify the quality of Flash by yourself. Refer to NOR Flash Level Standard.

NOTE

For 1M bytes memory, there is no need to test the 'over erase' item of the Flash.

2.5.2.1 XMC

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin	Over erase
XM25UH16CJIG	0x46	2MB	3.3V	4I/O	108MHz	Set Flash ID as 0xC8	Pass

2.5.2.2 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
W25Q80DVSSIG	0xEF	1MB	3.3V	4I/O	104MHz	-
W25Q16JVSSIQ		2MB	3.3V	4I/O	133MHz	Pass

2.5.2.3 MXIC

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
MX25U51245GZ4I00	0xC2	64MB	1.8V	4I/O	84MHz	Untested
MX25L3233FM1I-08G		4MB	3.3V	4I/O	104MHz	Pass

2.5.2.4 Zbit

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin	Over erase
ZB25VQ80ATIG	0x5E	1MB	3.3V	4I/O	120MHz	Set Flash ID as 0xC8	-
ZB25VQ16ATIG		2MB	3.3V	4I/O	104MHz		Pass
ZB25VQ128DSJG		16MB	3.3V	4I/O	104MHz		

2.5.2.5 ISSI

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin	Over erase
IS25LP016D	0x9D	2MB	3.3V	4I/O	133MHz	Set Flash ID as 0xC2	Pass
IS25LP032D		4MB	3.3V	4I/O	104MHz		

2.5.2.6 TSINGTENG

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin	Over erase
TH25Q-16HB-MSCI	0xEB	2MB	3.3V	4I/O	104MHz	Set Flash ID as 0xC8	Pass

2.5.2.7 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin	Over erase
MD25Q16CTIGR	0xC8	2MB	3.3V	4I/O	104MHz	-	Pass
MD25D80DTIG	0x51	1MB	3.3V	1I/2O	80MHz	Set Flash ID as 0xC2	-

2.5.2.8 GT

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin	Over erase
GT25Q16A-UGLI-TR	0xC4	2MB	3.3V	4I/O	110MHz	Set Flash ID as 0xC8	Pass

2.5.3 Level 1

All the Flashes of level 1 have only passed the function test, the stability of them cannot be guaranteed. Refer to NOR Flash Level Standard.

NOTE

The 'over erase' item of the listed Flashes below has not been tested.

2.5.3.1 MXIC

Part number	Flash ID	Density	Voltage	I/O	Max. clock
MX25L1633E	0xC2	2MB	3.3V	4I/O	85MHz
MX25L3236F		4MB	3.3V	4I/O	104MHz (6 dummy cycles) 133MHz (10 dummy cycles)
MX25L6433F		8MB	3.3V	4I/O	80MHz (6 dummy cycles) 133MHz (10 dummy cycles)
MX25L12845G		16MB	3.3V	4I/O	70MHz
MX25L1606E		2MB	3.3V	2O	80MHz
MX25V8006E		1MB	3.3V	2O	70MHz
MX25V1635F		2MB	3.3V	4I/O	80MHz
MX25V8035F		1MB	3.3V	4I/O	104MHz
KH25L8006EM2I-12G		1MB	3.3V	2O	80MHz
KH25L1606EM2I-12G		2MB	3.3V	2O	80MHz
MX25R1635FM1IL0		2MB	1.8V/3.3V	4I/O	80MHz

2.5.3.2 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock
W25Q80DV	0xEF	1MB	3.3V	4I/O	104MHz
W25Q16DV		2MB	3.3V	4I/O	104MHz
W25Q32FV		4MB	3.3V	4I/O	104MHz
W25R64FV		8MB	3.3V	4I/O	104MHz
W25R128FV		16MB	3.3V	4I/O	104MHz
W25Q16JVSNIQ		2MB	3.3V	4I/O	104MHz

2.5.3.3 Micron

Part number	Flash ID	Density	Voltage	I/O	Max. clock
N25Q032A13ESE40E	0x20	4MB	3.3V	4I/O	108MHz
N25Q064A13ESED0E		8MB	3.3V	4I/O	108MHz
N25Q128A		16MB	3.3V	4I/O	108MHz
N25Q00AA13GSF40F		128MB	3.3V	4I/O	108MHz

2.5.3.4 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin
GD25Q80C	0xC8	1MB	3.3V	4I/O	120MHz	-
GD25Q32C		4MB	3.3V	4I/O	120MHz	-
GD25Q64C		8MB	3.3V	4I/O	120MHz	-
GD25Q128C		16MB	3.3V	4I/O	80MHz	-
MD25D80TIG	0x51	1MB	3.3V	2O	80MHz	Set Flash ID as 0xC2
MD25D80SIG		1MB	3.3V	2O	80MHz	

2.5.3.5 ESMT

Part number	Flash ID	Density	Voltage	I/O	Max. clock
EN25QH16A	0x1C	2MB	3.3V	4I/O	104MHz
EN25QH16B (2A)		2MB	3.3V	4I/O	104MHz
EN25Q80B		1MB	3.3V	4I/O	104MHz
EN25Q80BY1HM		1MB	3.3V	4I/O	104MHz
EN25QH32B (2B)		4MB	3.3V	4I/O	104MHz

2.5.3.6 XTX

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin
XT25F16BSOIGU	0x0B	2MB	3.3V	2O	120MHz	Set Flash ID as 0xEF
XT25F16BSSIGU		2MB	3.3V	2O	120MHz	
XT25F08BSSIGU		1MB	3.3V	4I/O	108MHz	
XT25F08BSOIGU		1MB	3.3V	4I/O	108MHz	

2.5.3.7 Boya

Part number	Flash ID	Density	Voltage	I/O	Max. clock
BY25D16	0x68	2MB	3.3V	2O	108MHz

2.5.3.8 LRC

Part number	Flash ID	Density	Voltage	I/O	Max. clock
LR25D80SDG	0x68	1MB	3.3V	2O	108MHz
LR25D80SSG		1MB	3.3V	2O	108MHz
LR25D16SDG		2MB	3.3V	2O	108MHz
LR25D16SSG		2MB	3.3V	2O	108MHz

2.5.3.9 FT

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Flash ID in system.bin
FT25H08	0x0E	1MB	3.3V	4I/O	120MHz	Set Flash ID as 0xEF
FT25H16S-RB	0x0E	2MB	3.3V	4I/O	80MHz/120MHz	

2.5.3.10 FM

Part number	Flash ID	Density	Voltage	I/O	Max. clock
FM25Q08A	0xA1	1MB	3.3V	4I/O	104MHz
FM25Q08		1MB	3.3V	4I/O	104MHz
FM25Q16		2MB	3.3V	4I/O	104MHz

2.6 Ameba-ZII

The following sections list the Flashes of different vendors that have passed the test on Ameba-ZII platform. These Flashes are divided into three levels according to the Flash test result given by Realsil and the Flash test reports provided by the certified third-party or Flash vendor.

2.6.1 Level 3

Based on the performance and quality, the Flashes of level 3 are recommended.

None.

2.6.2 Level 2

All the Flashes of level 2 have passed the function test and the stability of them can be guaranteed, but you must evaluate and verify the quality of Flash by yourself. Refer to NOR Flash Level Standard.

2.6.2.1 Puya

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
PY25Q64HA	0x85	8MB	3.3V	4I/O	104MHz	Pass
PY25Q16HB		2MB	3.3V	4I/O	104MHz	

2.6.2.2 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock	Over erase
W25Q64JV	0xEF	8MB	3.3V	4I/O	133MHz	Pass (when RCV is enabled)

NOTE

Before using W25Q64JV, the RCV function must be enabled (by setting SR bit[19] to 1). Otherwise, the "Over Erase" operation may fail.

2.6.3 Level 1

All the Flashes of level 1 have only passed the function test, the stability of them cannot be guaranteed. Refer to NOR Flash Level Standard.

NOTE

The 'over erase' item of the listed Flashes below has not been tested.

2.6.3.1 MXIC

Part number	Flash ID	Density	Voltage	I/O	Max. clock
MX25V1635F	0xC2	2MB	3.3V	4I/O	133MHz
MX25L3233F		4MB	3.3V	4I/O	133MHz
MX25L32356M		4MB	3.3V	4I/O	133MHz
MX25L6433F		8MB	3.3V	4I/O	133MHz
MX25L64356M		8MB	3.3V	4I/O	133MHz
MX25L12833F		16MB	3.3V	4I/O	133MHz

2.6.3.2 Winbond

Part number	Flash ID	Density	Voltage	I/O	Max. clock
W25Q16JV	0xEF	2MB	3.3V	4I/O	133MHz
W25Q32JV		4MB	3.3V	4I/O	133MHz
W25Q128JV		16MB	3.3V	4I/O	133MHz

2.6.3.3 GigaDevice

Part number	Flash ID	Density	Voltage	I/O	Max. clock
GD25Q16C	0xC8	2MB	3.3V	4I/O	104MHz
GD25Q16E		2MB	3.3V	4I/O	133MHz
MD25Q16C		2MB	3.3V	4I/O	120MHz
GD25Q32C		4MB	3.3V	4I/O	104MHz
GD25Q32E		4MB	3.3V	4I/O	133MHz
MD25Q32C		4MB	3.3V	4I/O	104MHz
GD25Q64C		8MB	3.3V	4I/O	104MHz
GD25Q64E		8MB	3.3V	4I/O	133MHz

2.6.3.4 XTX

Part number	Flash ID	Density	Voltage	I/O	Max. clock
XT25F08B-S	0x0B	1MB	3.3V	4I/O	108MHz
XT25F16B		2MB	3.3V	4I/O	120MHz
XT25F32B-S		4MB	3.3V	4I/O	108MHz
XT25F64B		8MB	3.3V	4I/O	108MHz
XT25F64F		8MB	3.3V	4I/O	104MHz

2.6.3.5 ESMT

Part number	Flash ID	Density	Voltage	I/O	Max. clock
EN25QH16B (2A)	0x1C	2MB	3.3V	4I/O	104MHz
EN25QH32B (2B)		4MB	3.3V	4I/O	104MHz
EN25QH64A		8MB	3.3V	4I/O	104MHz

2.6.3.6 XMC

Part number	Flash ID	Density	Voltage	I/O	Max. clock
XM25UH16C	0x46	2MB	3.3V	4I/O	108MHz
XM25UH32C		4MB	3.3V	4I/O	108MHz

2.6.3.7 Boya

Part number	Flash ID	Density	Voltage	I/O	Max. clock
BY25Q80BSTIG	0x68	1MB	3.3V	4I/O	108MHz
BY25Q16BSTIG		2MB	3.3V	4I/O	108MHz
BY25Q32BSTIG		4MB	3.3V	4I/O	108MHz
BY25Q32C		4MB	3.3V	4I/O	108MHz
BY25Q64ASTIG		8MB	3.3V	4I/O	108MHz
BY25Q64ESTIG		8MB	3.3V	4I/O	120MHz

2.6.3.8 Zbit

Part number	Flash ID	Density	Voltage	I/O	Max. clock
ZB25VQ16A	0x5E	2MB	3.3V	4I/O	104MHz
ZB25Q16B		2MB	3.3V	4I/O	133MHz
ZB25VQ16C		2MB	3.3V	4I/O	133MHz
ZB25VQ32B		4MB	3.3V	4I/O	104MHz
ZB25Q32B		4MB	3.3V	4I/O	104MHz
ZB25VQ64A		8MB	3.3V	4I/O	104MHz
ZB25VQ64C		8MB	3.3V	4I/O	133MHz

2.6.3.9 Puya

Part number	Flash ID	Density	Voltage	I/O	Max. clock
P25Q32SH	0x85	4MB	3.3V	4I/O	120MHz
PY25Q32HB		4MB	3.3V	4I/O	133MHZ

2.6.3.10 TSTE

Part number	Flash ID	Density	Voltage	I/O	Max. clock
TH25Q16HB	0xEB	2MB	3.3V	4I/O	104MHz

2.6.3.11 GT

Part number	Flash ID	Density	Voltage	I/O	Max. clock
GT25Q16A	0xC4	2MB	3.3V	4I/O	120MHz
GT25Q32A		4MB	3.3V	4I/O	120MHz