Common Flash Memory Interface
Publication 100

Vendor & Device
ID Code Assignments

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Common Flash Memory Interface
CFI PUBLICATION 100

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Notice

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Overview

A. Purpose

The CFI Publication 100 is a companion document to the Common Flash Interface (CFI) specification, which outlines device and host system software interrogation handshake. CFI Publication 100 documents ID Code assignments for: 1) the Vendor-specific Command Set and Control Interfaces and 2) the Device Interfaces. It is published as needed when additions are made to either of these lists of codes.

B. Scope

The Vendor Command Set and Control Interface ID codes listed in CFI Publication 100 are assigned to each unique manufacturer's interfaces upon request to the CFI Program Office. A single vendor or association of vendors may thus identify any number of different interfaces. It is up to those manufacturers to provide the detailed specifications for each identified interface. Similarly, new device interface codes will be assigned as needed as new devices employing the Common Flash Interface Query scheme are identified. CFI Publication also provides examples of Query data output for pre-CFI devices as provided by participating vendors; these represent the appropriate data for the specifications and geometry of these devices as they would appear in the Query structure if the Query mode were available for them.

Section 1.
Vendor Command Set & Control Interface ID Code Assignments

Hex Value	Integer Value	OEM Sponsor	Interface Name
0000	0	Null	e.g. when no Alternate Vendor Command Set and Control Interface is specified
0001	1	Intel/Sharp	Intel/Sharp Extended Command Set
0002	2	AMD/Fujitsu	AMD/Fujitsu Standard Command Set
0003	3	Intel	Intel Standard Command Set
0004	4	AMD/Fujitsu	AMD/Fujitsu Extended Command Set
0100	256	Mitsubishi	Mitsubishi Standard Command Set
0101	257	Mitsubishi	Mitsubishi Extended Command Set
0102	258	SST	Page Write Command Set
FFFF	65,535	N/A	Not Allowed / Reserved for Future Use

Section 2.
Device Interface Code Assignments

Hex Value	Integer Value	Interface Name
0000	0	x8-only asynchronous interface
0001	1	x16-only asynchronous interface
0002	2	supports x8 and x16 via BYTE# with asynchronous interface
0003	3	x32-only asynchronous interface
0005	5	supports x16 and x32 via WORD# with asynchronous interface
FFFF	65,535	Not Allowed / Reserved for Future Use

Appendix

Appendix A. Query Structure Examples

The following tables represent Flash devices that are currently on the market or near product introduction.

CFI Query Identification String

Offset	Length (bytes)	Description	Example Data **STM M58BW016** x16/x32 capable x32-mode	Example Data **Intel 28F640K18** x16-only	Example Data **AMD/Fujitsu BDD160G** x16/x32 capable x32-mode	Example Data **AMD/Fujitsu 29LV065MU** x8-only	Example Data **AMD/Fujitsu 29LV640MT/B** x8/x16 capable x16-mode
10h	03h	Query-unique ASCII string "QRY"	10: 00000051h 11: 00000052h 12: 00000059h	10: 0051h 11: 0052h 12: 0059h	10: 00000051h 11: 00000052h 12: 00000059h	10: 51h 11: 52h 12: 59h	10: 0051h 11: 0052h 12: 0059h
13h	02h	Primary Vendor Command Set and Control Interface ID Code 16-bit ID code for vendor-specified algorithms	13: 00000020h 14: 00000000h	13: 0001h 14: 0000h	13: 00000002h 14: 00000000h	13: 02h 14: 00h	13: 0002h 14: 0000h
15h	02h	Address for Primary Algorithm extended Query table Offset value = ***P*** > 31h	15: 00000031h 16: 00000000h	15: 0031h 16: 0000h	15: 00000040h 16: 00000000h	15: 40h 16: 00h	15: 0040h 16: 0000h
17h	02h	Alternate Vendor Command Set and Control Interface ID Code second vendor-specified algorithm supported Note: ID Code = 0000h means none exists	17: 00000000h 18: 00000000h	17: 0000h 18: 0000h	17: 00000000h 18: 00000000h	17: 00h 18: 00h	17: 0000h 18: 0000h
19h	02h	Address for Secondary Algorithm extended Query table Note: Address 0000h means none exists	19: 00000031h 20: 00000000h	19: 0000h 20: 0000h	19: 00000000h 20: 00000000h	19: 00h 20: 00h	19: 0000h 20: 0000h

System Interface String

Offset	Length (bytes)	Description	Example Data STM M58BW016 x16/x32 capable x32-mode	Example Data Intel 28F640K18 x16-only	Example Data AMD/Fujitsu BDD160G x16/x32 capable x32-mode	Example Data AMD/Fujitsu 29LV065MU x8-only	Example Data AMD/Fujitsu 29LV640MT/B x8/x16 capable x16-mode
1Bh	01h	Vcc Logic Supply Minimum Write/Erase voltage bits 7-4 BCD volts bits 3-0 BCD 100 millivolts	1B: 00000027h	1B: 0027h	1B: 00000023h	1B: 27h	1B: 0027h
1Ch	01h	Vcc Logic Supply Maximum Write/Erase voltage bits 7-4 BCD volts bits 3-0 BCD 100 millivolts	1C: 00000036h	1C: 0036h	1C: 00000027h	1C: 36h	1C: 0036h
1Dh	01h	Vpp [Programming] Supply Minimum Write/Erase voltage bits 7-4 HEX volts bits 3-0 BCD 100 millivolts	1D: 00000000h (No Vpp)	1D: 0000h (No Vpp)	1D: 00000000h (No Vpp)	1D: 00h (No Vpp)	1D: 0000h (No Vpp)
1Eh	01h	Vpp [Programming] Supply Maximum Write/Erase voltage bits 7-4 HEX volts bits 3-0 BCD 100 millivolts	1E: 00000000h	1E: 0000h	1E: 00000000h	1E: 00h	1E: 0000h

System Interface String

Offset	Length (bytes)	Description	Example Data STM M58BW016 x16/x32 capable x-32-mode	Example Data Intel 28F640K18 x16-only	Example Data AMD/Fujitsu BDD160G x16/x32 capable x32-mode	Example Data AMD/Fujitsu 29LV065MU x8-only	Example Data AMD/Fujitsu 29LV640MT/B x8/x16 capable x16-mode
1Fh	01h	Typical timeout per single byte/word write, 2^N microsecond	1F: 00000000h	1F: 0007h	1F: 00000004h	1F: 07h	1F: 0007h
20h	01h	Typical timeout for max buffer write, 2^N microsecond (00h = not supported)	20: 00000007h	20: 0008h	20: 00000000h	20: 07h	20: 0007h
21h	01h	Typical timeout per individual block erase, 2^N millisecond	21: 0000000Ah	21: 000Ah	21: 00000009h	21: 0Ah	21: 000Ah
22h	01h	Typical timeout for full chip erase, 2^N millisecond (0000h = not supported)	22: 00000000h	22: 0000h	22: 00000000h	22: 00h	22: 0000h
23h	01h	Maximum timeout for byte/word write, 2^N times typical	23: 00000000h	23: 0004h	23: 00000005h	23: 01h	23: 0001h
24h	01h	Maximum timeout for buffer write, 2^N times typical	24: 00000004h	24: 0004h	24: 00000000h	24: 05h	24: 0005h
25h	01h	Maximum timeout per individual block erase, 2^N times typical	25: 00000004h	25: 0002h	25: 00000007h	25: 04h	25: 0004h
26h	01h	Maximum timeout for chip erase, 2^N times typical (00h = N/A)	26: 00000000h	26: 0000h	26: 00000000h	26: 00h	26: 0000h

Device Geometry Definition

Offset	Length (bytes)	Description	Example Data STM M58BW016 x16/x32 capable x32-mode	Example Data Intel 28F640K18 x16-only	Example Data AMD/Fujitsu BDD160G x16/x32 capable x32-mode	Example Data AMD/Fujitsu 29LV065MU x8-only	Example Data AMD/Fujitsu 29LV640MT/B x8/x16 capable x16-mode
27h	01h	Device Size= 2^n in number of bytes.	27: 00000015h	27: 0017h	27: 00000015h	27: 17h	27: 0017h
28h	02h	Flash Device Interface description value meaning 0000h x8 asynchronous 0001h x16 asynchronous 0002h x8/x16 asynchronous 0003h x32 asynchronous 0005h x16/x32 asynchronous	28: 00000005h 29: 00000000h	28: 0001h 29: 0000h	28: 00000005h 29: 00000000h	28: 00h 29: 00h	28: 0002h 29: 0000h
2Ah	02h	Maximum number of bytes in multi-byte write = 2^N (0000h = not supported)	2A: 00000005h 2B: 00000000h	2A: 0006h 2B: 0000h	2A: 00000000h 2B: 00000000h	2A: 05h 2B: 00h	2A: 0005h 2B: 0000h
2Ch	01h	Number of Erase Block Regions within device: **bits 7-0 = x** = # of Erase Block Regions	2C: 00000001h	2C: 0001h	2C: 00000004h	2C: 01h	2C: 0002h
2Dh	04h	Erase Block Region 1 Information **bits 31- 16 = z**, where the Erase Block(s) within this Region are (z) times 256 bytes **bits 15 - 0 = y**, where y+1 = Number of Erase Blocks of identical size within region	y: (64 BLKs) 2D: 0000003Fh 2E: 00000000h z: (128KB size) 2F: 00000000h 30: 00000002h	y: (64 BLKs) 2D: 003Fh 2E: 0000h z: (128KB size) 2F: 0000h 30: 0002h	y: (8 BLKs) 2D: 00000007h 2E: 00000000h z: (8KB size) 2F: 00000020h 30: 00000000h	y: (128 BLKs) 2D: 7Fh 2E: 00h z: (64KB size) 2F: 00h 30: 01h	y: (8 BLKs) 2D: 0007h 2E: 0000h z: (8KB size) 2F: 0020h 30: 0000h

Device Geometry Definition

Offset	Length (bytes)	Description	Example Data STM M58BW016 x16/x32 capable x32-mode	Example Data Intel 28F640K18 x16-only	Example Data AMD/Fujitsu BDD160G x16/x32 capable x32-mode	Example Data AMD/Fujitsu 29LV065MU x8-only	Example Data AMD/Fujitsu 29LV640MT/B x8/x16 capable x16-mode
31h	04h	Erase Block Region 2 Information	y: (0 BLKs) 31: 00000000h 32: 00000000h z: (0KB size) 33: 00000000h 34: 00000000h	y: (0 BLKs) 31: 0000h 32: 0000h z: (0KB size) 33: 0000h 34: 0000h	y: (30 BLKs) 31: 0000001Dh 32: 00000000h z: (64KB size) 33: 00000000h 34: 00000001h	y: (0 BLKs) 31: 00h 32: 00h z: (0KB size) 33: 00h 34: 00h	y: (127 BLKs) 31: 007Eh 32: 0000h z: (64KB size) 33: 0000h 34: 0001h
35h	04h	Erase Block Region 3 Information	y: (0 BLKs) 35: 00000000h 36: 00000000h z: (0KB size) 37: 00000000h 38: 00000000h	y: (0 BLKs) 35: 0000h 36: 0000h z: (0KB size) 37: 0000h 38: 0000h	y: (8 BLKs) 35: 00000007h 36: 00000000h z: (8KB size) 37: 00000020h 38: 00000000h	y: (0 BLKs) 35: 00h 36: 00h z: (0KB size) 37: 00h 38: 00h	y: (0 BLKs) 35: 0000h 36: 0000h z: (0KB size) 37: 0000h 38: 0000h
39h	04h	Erase Block Region 4 Information	y: (0 BLK) 39: 00000000h 3A: 00000000h z: (0KB size) 3B: 00000000h 3C: 00000000h	y: (0 BLK) 39: 0000h 3A: 0000h z: (0KB size) 3B: 0000h 3C: 0000h	y: (0 BLK) 39: 00000000h 3A: 00000000h z: (0KB size) 3B: 00000000h 3C: 00000000h	y: (0 BLK) 39: 00h 3A: 00h z: (0KB size) 3B: 00h 3C: 00h	y: (0 BLK) 39: 0000h 3A: 0000h z: (0KB size) 3B: 0000h 3C: 0000h

Vendor-Specific Extended Query Table

Primary Vendor-Specific Extended Query Table

Offset	Length (bytes)	Description	Data
(P)h	03h	Primary extended Query table unique ASCII string "PRI"	P: 50h P+1: 52h P+2: 49h
(P+3)h	01h	Major version number, ASCII	P+3: VV_P
(P+4)h	01h	Minor version number, ASCII	P+4: vv_P
(P+5)h	*variable*	*Vendor-specific extended Query table contents*	*TBD by Vendor*

Alternate Vendor-Specific Extended Query Table

Offset	Length (bytes)	Description	Data
(A)h	03h	Alternate extended Query table unique ASCII string "ALT"	2E: 41h 2F: 4Ch 30: 54h
(A+)h	01h	Major version number, ASCII	31: VV_A
(A+4)h	01h	Minor version number, ASCII	32: vv_A
(A+5)h	*variable*	*Vendor-specific extended Query table contents*	*TBD by Vendor*