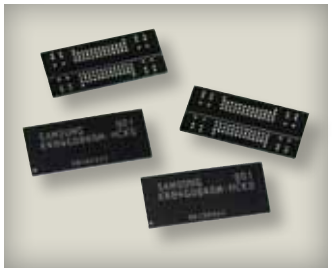
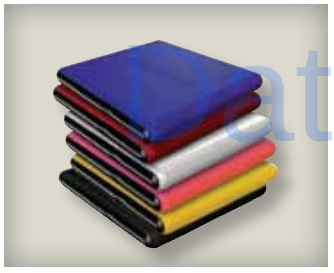
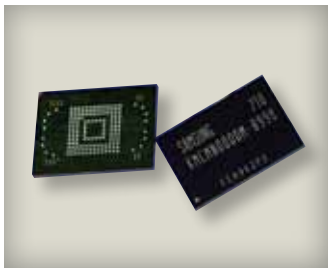




SAMSUNG

PRODUCT SELECTION GUIDE

LCD, Memory and Storage - 1H 2011



Samsung Semiconductor, Inc

Samsung continues to lead the industry with the broadest portfolio of memory products and technology. Its DRAM, flash, SRAM products are found in computers—from ultra-mobile notebooks to powerful servers—and in a wide range of handheld devices such as smartphones and tablets. Samsung also delivers the industry's widest line of storage products from the consumer to the enterprise level. These include optical and hard disk drives as well as flash storage, such as the all-flash Solid State Drive and a range of embedded and removable flash storage products.

Markets	DRAM	SRAM	FLASH	ASIC	LOGIC	TFT/LCD	ODD/HDD
Mobile / Wireless 	■	■	■	■	■	■	■
Notebook PCs 	■		■	■	■	■	■
Desktop PCs / Workstations 	■	■	■	■	■	■	■
Servers 	■	■	■	■	■	■	■
Networking / Communications 	■	■	■	■	■		■
Consumer Electronics 	■	■	■	■	■	■	■

samsung.com/us/business/oem-solutions

DRAM

Pages 4-12

samsung.com/semi/dram

- DDR3 SDRAM
- DDR2 SDRAM
- DDR SDRAM
- SDRAM
- Mobile DRAM
- Graphics DDR SDRAM
- DRAM Ordering Information

FLASH

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samsung.com/semi/flash

- SLC Flash
- MLC Flash
- SD and microSD Cards
- moviNAND™ (eMMC)
- Solid State Drive
- SATA SSD
- Flash Ordering Information

HIGH-SPEED SRAM

Pages 16-20

samsung.com/semi/sram

- Asychronous
- Synchronous
- NtRAM™
- Late-Write RR SRAM
- DDR Synchronous SRAM
- QDR Synchronous SRAM
- SRAM Ordering Information

MULTI-CHIP PACKAGE

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samsung.com/semi/mcp

- NAND + MDDR
- moviNAND + LPDDR2
- NOR + UtRAM

STORAGE

Pages 22-24

samsung.com/greenmemory	• Solid State Drive • SATA SSD
samsung.com/hdd	• Hard Disk Drive
samsungodd.com	• Optical Disk Drive

LCD

Pages 25-27

tftlcd.com

- Exclusive Digital Information Display (E-DID)
- Performance Digital Information Display (P-DID)
- Basic Digital Information Display (B-DID)
- Tablets
- Notebooks/PCs
- Monitors

DDR3 SDRAM REGISTERED MODULES

Density	Voltage	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Ranks	Production
1GB	1.5V	128Mx72	M393B2873FH0-C(F8/H9/K0)(04/05)	1Gb (128M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M393B2873GB0-C(F8/H9/K0/MA)(08/09)	1Gb (128M x8) * 9	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	1	Now
2GB	1.5V	256Mx72	M393B5673FH0-C(F8/H9/K0)(04/05)	1Gb (128M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B5673GB0-C(F8/H9/K0/MA)(08/09)	1Gb (128M x8) * 18	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	2	Now
			M393B5670FH0-C(F8/H9/K0)(04/05)	1Gb (256M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M393B5670GB0-C(F8/H9/K0/MA)(08/09)	1Gb (256M x4) * 18	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	1	Now
			M393B5773CH0-C(F8/H9/K0)(04/05)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M393B5773DH0-C(F8/H9/K0/MA)(08/09)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
4GB	1.5V	512Mx72	M393B5173FH0-C(F8/H9/K0)(04/05)	1Gb (128M x8) * 36	Lead Free & Halogen Free	1066/1333/1600	4	Now
			M393B5173GB0-C(F8/H9)(08/09)	1Gb (128M x8) * 36	Lead Free & Halogen Free, Flip Chip	1066/1333	4	Now
			M393B5170FH0-C(F8/H9/K0)(04/05)	1Gb (256M x4) * 36	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B5170GB0-C(F8/H9/K0/MA)(08/09)	1Gb (256M x4) * 36	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	2	Now
			M393B5273CH0-C(F8/H9/K0)(04/05)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B5273DH0-C(F8/H9/K0/MA)(08/09)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
			M393B5270CH0-C(F8/H9/K0)(04/05)	2Gb (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M393B5270DH0-C(F8/H9/K0/MA)(08/09)	2Gb (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
8GB	1.5V	1Gx72	M393B1K73CH0-C(F8/H9)(04/05)	2Gb (256M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B1K73DH0-C(F8/H9)(08/09)	2Gb (256M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B1K70CH0-C(F8/H9/K0)(04/05)	2Gb (512M x4) * 36	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B1K70DH0-C(F8/H9/K0/MA)(08/09)	2Gb (512M x4) * 36	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
16GB	1.5V	2Gx72	M393B2K70CM0-C(F8/H9)(04/05)	2Gb DDP (1024M x4) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B2K70DM0-C(F8/H9)(08/09)	2Gb DDP (1024M x4) * 36	Lead Free & Halogen Free	1066/1333	4	Now
8GB	1.5V	1Gx72	M393B1G70BH0-C(F8/H9/K0/MA)(08/09)	4Gb (1G x4) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
			M393B1G73BH0-C(F8/H9/K0/MA)(08/09)	4Gb (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
16GB	1.5V	2Gx72	M393B2G70AH0-C(F8/H9/K0)(04/05)	4Gb (1024M x4) * 36	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B2G70BH0-C(F8/H9/K0)(08/09)	4Gb (1024M x4) * 36	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B2G73AH0-C(F8/H9)(04/05)	4Gb (512M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B2G73BH0-C(F8/H9)(08/09)	4Gb (512M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
32GB	1.5V	4Gx72	M393B4G70AM0-C(F8/H9)(04/05)	4Gb DDP (2048M x4) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B4G70BM0-C(F8/H9)(08/09)	4Gb DDP (2048M x4) * 36	Lead Free & Halogen Free	1066/1333	4	Now
8GB	1.35V	1Gx72	M393B1G70BH0-Y(F8/H9/K0/MA)(08/09)	4Gb (1G x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M393B1G73BH0-Y(F8/H9/K0/MA)(08/09)	4Gb (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
16GB	1.35V	2Gx72	M393B2G70AH0-Y(F8/H9)(04/05)	4Gb (1024M x4) * 36	Lead Free & Halogen Free	1066/1333	2	Now
			M393B2G70BH0-Y(F8/H9/K0)(08/09)	4Gb (1024M x4) * 36	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B2G73AH0-Y(F8/H9)(04/05)	4Gb (512M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B2G73AH0-Y(F8/H9)(04/05)	4Gb (512M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
32GB	1.35V	4Gx72	M393B4G70AM0-Y(F8/H9)(04/05)	4Gb DDP (2048M x4) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B4G70BM0-Y(F8/H9)(08/09)	4Gb DDP (2048M x4) * 36	Lead Free & Halogen Free	1066/1333	4	Now
2GB	1.35V	256Mx72	M393B5773CH0-Y(F8/H9/K0)(04/05)	2Gb (256M x4) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M393B5773DH0-Y(F8/H9/K0)(08/09)	2Gb (256M x4) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
4GB	1.35V	512Mx72	M393B5173FH0-Y(F8/H9)(04/05)	1Gb (128M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B5173GB0-Y(F8/H9)(08/09)	1Gb (128M x8) * 36	Lead Free & Halogen Free, Flip Chip	1066/1333	4	Now
			M393B5170FH0-Y(F8/H9/K0)(04/05)	1Gb (256M x4) * 36	Lead Free & Halogen Free	1066/1333	2	Now
			M393B5170GB0-Y(F8/H9/K0)(08/09)	1Gb (256M x4) * 36	Lead Free & Halogen Free, Flip Chip	1066/1333/1600	2	Now
			M393B5273CH0-Y(F8/H9/K0)(04/05)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B5273DH0-Y(F8/H9/K0)(08/09)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B5270CH0-Y(F8/H9/K0)(04/05)	2Gb (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M393B5270DH0-Y(F8/H9/K0)(08/09)	2Gb (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
8GB	1.35V	1Gx72	M393B1K73CH0-Y(F8/H9)(04/05)	2Gb (256M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B1K73DH0-Y(F8/H9)(08/09)	2Gb (256M x8) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B1K70CH0-Y(F8/H9/K0)(04/05)	2Gb (512M x4) * 36	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M393B1K70DH0-Y(F8/H9/K0)(08/09)	2Gb (512M x4) * 36	Lead Free & Halogen Free	1066/1333/1600	2	Now
16GB	1.35V	2Gx72	M393B2K70CM0-Y(F8/H9)(04/05)	2Gb DDP (1024M x4) * 36	Lead Free & Halogen Free	1066/1333	4	Now
			M393B2K70DM0-Y(F8/H9)(08/09)	2Gb DDP (1024M x4) * 36	Lead Free & Halogen Free	1066/1333	4	Now

NOTES:

F7 = DDR3-800 (6-6-6)
F8 = DDR3-1066 (7-7-7)
H9 = DDR3-1333 (9-9-9)
K0 = DDR3-1600 (11-11-11)
MA = DDR3-1866 (13-13-13)

04 = IDT B0 register
05 = Inphi C0 register
08 = IDT
09 = Inphi
* K0 (1600Mbps) available in ES only

DDR3 SDRAM VLP REGISTERED MODULES

Density	Voltage	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Ranks	Production
1GB	1.5V	128Mx72	M392B2873FH0-C(F8/H9/K0)(04/05)	1Gb (128M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M392B2873GB0-C(F8/H9/K0/MA)(08/09)	1Gb (128M x8) * 9	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	1	Now
2GB	1.5V	256Mx72	M392B5673FH0-C(F8/H9/K0)(04/05)	1Gb (128M x8) * 18	Lead Free & Halogen Free	1066/1333/K0	2	Now
			M392B5673GB0-C(F8/H9/K0/MA)(08/09)	1Gb (128M x8) * 18	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	2	Now
			M392B5670FH0-C(F8/H9/K0)(04/05)	1Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M392B5670GB0-C(F8/H9/K0/MA)(08/09)	1Gb (256M x8) * 18	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	1	Now
			M392B5773CH0-C(F8/H9/K0)(04/05)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M392B5773DH0-C(F8/H9/K0/MA)(08/09)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
4GB	1.5V	512Mx72	M392B5170FM0-C(F8/H9/K0)(04/05)	1Gb DDP (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B5273CH0-C(F8/H9/K0)(04/05)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B5273DH0-C(F8/H9/K0/MA)(08/09)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
			M392B5270CH0-C(F8/H9/K0)(04/05)	2Gb (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M392B5270DH0-C(F8/H9/K0/MA)(08/09)	2Gb (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
8GB	1.5V	1Gx72	M392B1K73CM0-C(F8/H9)(04/05)	2Gb DDP (512M x8) * 18	Lead Free & Halogen Free	1066/1333	4	Now
			M392B1K73DM0-C(F8/H9)(08/09)	2Gb DDP (512M x8) * 18	Lead Free & Halogen Free	1066/1333	4	Now
			M392B1K70CM0-C(F8/H9/K0)(04/05)	2Gb DDP (1024M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B1K70DM0-C(F8/H9/K0/MA)(08/09)	2Gb DDP (1024M x4) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
			M392B1G73BH0-C(F8/H9/K0/MA)(08/09)	4Gb (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
			M392B1G70BH0-C(F8/H9/K0/MA)(08/09)	4Gb (1024M x4) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
16GB	1.5V	2Gx72	M392B2G70AM0-C(F8/H9/K0)(04/05)	4Gb DDP (2048M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B2G70BM0-C(F8/H9/K0/MA)(08/09)	4Gb DDP (2048M x4) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
			M392B2G73AM0-C(F8/H9)(04/05)	4Gb DDP (1024M x8) * 18	Lead Free & Halogen Free	1066/1333	4	Now
			M392B2G73BM0-C(F8/H9)(08/09)	4Gb DDP (1024M x8) * 18	Lead Free & Halogen Free	1066/1333	4	Now
8GB	1.35V	1Gx72	M392B1G73BH0-Y(F8/H9/K0)(08/09)	4Gb (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M392B1G70BH0-Y(F8/H9/K0)(08/09)	4Gb (1024M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
16GB	1.35V	2Gx72	M392B2G70AM0-Y(F8/H9)(04/05)	4Gb DDP (2048M x4) * 18	Lead Free & Halogen Free	1066/1333	2	Now
			M392B2G70BM0-Y(F8/H9/K0)(08/09)	4Gb DDP (2048M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B2G70AM0-Y(F8/H9)(04/05)	4Gb DDP (1024M x8) * 18	Lead Free & Halogen Free	1066/1333	4	Now
			M392B2G70BM0-Y(F8/H9)(08/09)	4Gb DDP (1024M x8) * 18	Lead Free & Halogen Free	1066/1333	4	Now
2GB	1.35V	256Mx72	M392B5773CH0-Y(F8/H9/K0)(04/05)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M392B5773DH0-Y(F8/H9/K0)(08/09)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
4GB	1.35V	512Mx72	M392B5170FM0-Y(F8/H9/K0)(04/05)	1Gb DDP (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B5273CH0-Y(F8/H9/K0)(04/05)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B5273DH0-Y(F8/H9/K0)(08/09)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B5270CH0-Y(F8/H9/K0)(04/05)	2Gb (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M392B5270DH0-Y(F8/H9/K0)(08/09)	2Gb (512M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	1	Now
8GB	1.35V	1Gx72	M392B1K73CM0-Y(F8/H9/K0)(04/05)	2Gb DDP (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	4	Now
			M392B1K73DM0-Y(F8/H9)(08/09)	2Gb DDP (512M x8) * 18	Lead Free & Halogen Free	1066/1333	4	Now
			M392B1K70CM0-Y(F8/H9/K0)(04/05)	2Gb DDP (1024M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M392B1K70DM0-Y(F8/H9/K0)(08/09)	2Gb DDP (1024M x4) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now

NOTES:
F7 = DDR3-800 (6-6-6)
F8 = DDR3-1066 (7-7-7)
H9 = DDR3-1333 (9-9-9)
K0 = DDR3-1600 (11-11-11)
MA = DDR3-1866 (13-13-13)
04 = IDT B0 register
05 = Inphi C0 register
08 = IDT
09 = Inphi

DDR3 SDRAM UNBUFFERED MODULES

Density	Voltage	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Ranks	Production
1GB	1.5V	128Mx64	M378B2873FH0-C(F8/H9/K0)	1Gb (128M x8) * 8	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M378B2873GB0-C(F8/H9/K0/MA)	1Gb (128M x8) * 8	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	1	Now
2GB	1.5V	256Mx64	M378B5673FH0-C(F8/H9/K0)	1Gb (128M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M378B5673GB0-C(F8/H9/K0/MA)	1Gb (128M x8) * 16	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	2	Now
			M378B5773CH0-C(F8/H9/K0)	2Gb (256M x8) * 8	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M378B5773DH0-C(F8/H9/K0/MA)	2Gb (256M x8) * 8	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
4GB	1.5V	512Mx64	M378B5273CH0-C(F8/H9/K0)	2Gb (256M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M378B5273DH0-C(F8/H9/K0/MA)	2Gb (256M x8) * 16	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
		1024Mx64	M378B5173BH0-C(F8/H9/K0/MA)	4Gb (512M x8) * 8	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
8GB	1.5V	1024Mx64	M378B1G73AH0-C(F8/H9/K0)	4Gb (512M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M378B1G73BH0-C(F8/H9/K0/MA)	4Gb (512M x8) * 16	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now

DDR3 SDRAM UNBUFFERED MODULES (ECC)

Density	Voltage	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Ranks	Production
1GB	1.5V	128Mx72	M391B2873FH0-C(F8/H9/K0)	1Gb (128M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M391B2873GB0-C(F8/H9/K0/MA)	1Gb (128M x8) * 9	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	1	Now
2GB	1.5V	256Mx72	M391B5673FH0-C(F8/H9/K0)	1Gb (128M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M391B5773CH0-C(F8/H9/K0)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M391B5773DH0-C(F8/H9/K0/MA)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
4GB	1.5V	512Mx72	M391B5273CH0-C(F8/H9/K0)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M391B5273DH0-C(F8/H9/K0/MA)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
4GB	1.5V	1024Mx64	M391B5173BH0-C(F8/H9/K0/MA)	4Gb (512M x8) * 9	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
8GB	1.5V	1024Mx72	M391B1G73AH0-C(F8/H9/K0)	4Gb (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M391B1G73BH0-C(F8/H9/K0/MA)	4Gb (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
4GB	1.35V	1024Mx64	M391B5173BH0-Y(F8/H9/K0)	4Gb (512M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
8GB	1.35V	1024Mx72	M391B1G73AH0-Y(F8/H9/K0)	4Gb (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M391B1G73BH0-Y(F8/H9/K0)	4Gb (512M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
1GB	1.35V	128Mx72	M391B2873FH0-Y(F8/H9/K0)	1Gb (128M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M391B2873GB0-Y(F8/H9/K0)	1Gb (128M x8) * 9	Lead Free & Halogen Free, Flip Chip	1066/1333/1600	1	Now
2GB	1.35V	256Mx72	M391B5673FH0-Y(F8/H9/K0)	1Gb (128M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M391B5773CH0-Y(F8/H9/K0)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M391B5773DH0-Y(F8/H9/K0)	2Gb (256M x8) * 9	Lead Free & Halogen Free	1066/1333/1600	1	Now
4GB	1.35V	512Mx72	M391B5273CH0-Y(F8/H9/K0)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M391B5273DH0-Y(F8/H9/K0)	2Gb (256M x8) * 18	Lead Free & Halogen Free	1066/1333/1600	2	Now

NOTES: F7 = DDR3-800 (6-6-6) F8 = DDR3-1066 (7-7-7) H9 = DDR3-1333 (9-9-9) K0 = DDR3-1600 (11-11-11) MA = DDR3-1866 (13-13-13)

DDR3 SDRAM SODIMM MODULES

Density	Voltage	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Ranks	Production
1GB	1.5V	128Mx64	M471B2873FHS-C(F8/H9/K0)	1Gb (128M x8) * 8	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M471B2873GB0-C(F8/H9/K0/MA)	1Gb (128M x8) * 8	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	1	Now
2GB	1.5V	256Mx64	M471B5673FH0-C(F8/H9/K0)	1Gb (128M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M471B5673GB0-C(F8/H9/K0/MA)	1Gb (128M x8) * 16	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	2	Now
			M471B5773CHS-C(F8/H9/K0)	2Gb (256M x8) * 8	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M471B5773DH0-C(F8/H9/K0/MA)	2Gb (256M x8) * 8	Lead Free & Halogen Free	1066/1333/1600/1866	1	Now
4GB	1.5V	512Mx64	M471B5273CH0-C(F8/H9/K0)	2Gb (256M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M471B5273DH0-C(F8/H9/K0/MA)	2Gb (256M x8) * 16	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
4GB	1.5V	1024Mx64	M471B5173BH0-C(F8/H9/K0)	4Gb (512M x8) * 8	Lead Free & Halogen Free	1066/1333/1600	1	Now
8GB	1.5V	1024Mx64	M471B1G73AH0-C(F8/H9/K0)	4Gb (512M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M471B1G73BH0-C(F8/H9/K0/MA)	4Gb (512M x8) * 16	Lead Free & Halogen Free	1066/1333/1600/1866	2	Now
2GB	1.35V	256Mx64	M471B5773CHS-Y(F8/H9)	2Gb (256M x8) * 8	Lead Free & Halogen Free	1066/1333/1600	1	Now
			M471B5773DH0-Y(F8/H9/K0)	2Gb (256M x8) * 8	Lead Free & Halogen Free	1066/1333/1600	1	Now
4GB	1.35V	512Mx64	M471B5273CH0-Y(F8/H9)	2Gb (256M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M471B5273DH0-Y(F8/H9/K0)	2Gb (256M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
4GB	1.35V	1024Mx64	M471B5173BH0-Y(F8/H9/K0)	4Gb (512M x8) * 8	Lead Free & Halogen Free	1066/1333/1600	1	Now
8GB	1.35V	1024Mx64	M471B1G73AH0-Y(F8/H9/K0)	4Gb (512M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now
			M471B1G73BH0-Y(F8/H9/K0)	4Gb (512M x8) * 16	Lead Free & Halogen Free	1066/1333/1600	2	Now

NOTES: F7 = DDR3-800 (6-6-6) F8 = DDR3-1066 (7-7-7) H9 = DDR3-1333 (9-9-9) K0 = DDR3-1600 (11-11-11) MA = DDR3-1866 (13-13-13)

DDR3 SDRAM COMPONENTS

Density	Voltage	Organization	Part Number	# Pins-Package	Compliance	Speed (Mbps)	Dimensions	Production
1Gb	1.5V	256M x4	K4B1G0446F-HC(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B1G0446G-BC(F8/H9/K0/MA)	78 Ball -FBGA	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	7.5x11mm	Now
1Gb	1.5V	128M x8	K4B1G0846F-HC(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B1G0846G-BC(F8/H9/K0/MA)	78 Ball -FBGA	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866	7.5x11mm	Now
1Gb	1.5V	128M x16	K4B1G1646G-BC(F8/H9/K0/MA/NB)	96 Ball -FBGA	Lead Free & Halogen Free, Flip Chip	1066/1333/1600/1866/2133	7.5x13.3mm	Now
2Gb	1.5V	512M x4	K4B2G0446C-HC(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B2G0446D-HC(F8/H9/K0/MA)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600/1866	7.5x11mm	Now
2Gb	1.5V	256M x8	K4B2G0846C-HC(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B2G0846D-HC(F8/H9/K0/MA)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600/1866	7.5x11mm	Now
2Gb	1.5V	128Mx16	K4B2G1646C-HC(F8/H9/K0/MA)	96 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600/1866	7.5x13.3mm	Now
4Gb	1.5V	1024M x4	K4B4G0446A-HC(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B4G0446B-HC(F8/H9/K0/MA)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600/1866	7.5x11mm	Now
4Gb	1.5V	512M x8	K4B4G0846A-HC(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B4G0846B-HC(F8/H9/K0/MA)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600/1866	7.5x11mm	Now
1Gb	1.35V	256M x4	K4B1G0446F-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B1G0446G-BY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free, Flip Chip	1066/1333/1600	7.5x11mm	Now
1Gb	1.35V	128M x8	K4B1G0846F-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333	7.5x11mm	Now
			K4B1G0846G-BY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free, Flip Chip	1066/1333/1600	7.5x11mm	Now
2Gb	1.35V	512M x4	K4B2G0446C-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B2G0446D-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
2Gb	1.35V	256M x8	K4B2G0846C-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B2G0846D-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
4Gb	1.35V	1024M x4	K4B4G0446A-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B4G0446B-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
4Gb	1.35V	512M x8	K4B4G0846A-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now
			K4B4G0846B-HY(F8/H9/K0)	78 Ball -FBGA	Lead Free & Halogen Free	1066/1333/1600	7.5x11mm	Now

NOTES: F7 = DDR3-800 (6-6-6) H9 = DDR3-1333 (9-9-9) MA = DDR3-1866 (13-13-13) * MA, and NB are available in ES only
F8 = DDR3-1066 (7-7-7) K0 = DDR3-1600 (11-11-11) NB = DDR3-2133 (14-14-14)

DDR2 SDRAM REGISTERED MODULES

Density	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Register	Rank	Production
1GB	128Mx72	M393T2863FBA-C(E6/F7)	(128M x8)*9	Lead free	667/800	Y	1	Now
2GB	256Mx72	M393T5660FBA-C(E6/F7)	(256M x4)*18	Lead free	667/800	Y	1	Now
		M393T5663FBA-C(E6/E7)	(128M x8)*18	Lead free	667/800	Y	2	Now
4GB	512Mx72	M393T5160FBA-C(E6/F7)	(256M x4)*36	Lead free	667/800	Y	2	Now

NOTES: E6 = PC2-5300 (DDR2-667 @ CL=5) F7 = PC2-6400 (DDR2-800 @ CL=6) E7 = PC2-6400 (DDR2-800 @ CL=5) Voltage = 1.8V

DDR2 SDRAM VLP REGISTERED MODULES

Density	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Register	Rank	Production
2GB	256Mx72	M392T5660FBA-CE6	(256M x4)*18	Lead free	667	Y	1	Now

DDR2 SDRAM FULLY BUFFERED MODULES

Density	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Voltage	Rank	Production
2GB	256Mx72	M395T5663FB4-CE68	(128M x8)*18	Lead free	667	1.8V	2	Now
4GB	512Mx72	M395T5160FB4-CE68	(256M x4)*36	Lead free	667	1.8V	2	Now
		M395T5163FB4-CE68	(128M x8)*36	Lead free	667	1.8V	4	Now

NOTES: E6 = PC2-5300 (DDR2-667 @ CL=5) Voltage = 1.8V (AMB Voltage = 1.5V) AMB = IDT L4

DDR2 SDRAM UNBUFFERED MODULES

Density	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Rank	Production
1GB	128Mx64	M378T2863FBS-C(E6/F7/E7)	(128M x8)*8	Lead free	667/800	1	Now
2GB	256Mx64	M378T5663FB3-C(E6/F7/E7)	(128M x8)*16	Lead free	667/800	2	Now

NOTES: E6 = PC2-5300 (DDR2-667 @ CL=5) E7 = PC2-6400 (DDR2-800 @ CL=5) F7 = PC2-6400 (DDR2-800 @ CL=6) Voltage = 1.8V

DDR2 SDRAM UNBUFFERED MODULES (ECC)

Density	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Rank	Production
1GB	128Mx72	M391T2863FB3-C(E6/F7)	(128Mx8)*9	Lead free	667/800	1	Now
2GB	256Mx64	M391T5663FB3-C(E6/F7)	(128Mx8)*18	Lead free	667/800	2	Now

NOTES: E6 = PC2-5300 (DDR2-667 @ CL=5)
E7 = PC2-6400 (DDR2-800 @ CL=5)
F7 = PC2-6400 (DDR2-800 @ CL=6)
Voltage = 1.8V

DDR2 SDRAM SODIMM MODULES

Density	Organization	Part Number	Composition	Compliance	Speed (Mbps)	Rank	Production
1GB	128Mx64	M470T2863FB3-C(E6/F7/E7)	(64Mx16)*8	Lead free	667/800	2	Now
2GB	256Mx64	M470T5663FB3-C(E6/F7/E7)	(128M x8)*8	Lead free	667/800	2	Now

NOTES: E6 = PC2-5300 (DDR2-667 @ CL=5)
E7 = PC2-6400 (DDR2-800 @ CL=5)
F7 = PC2-6400 (DDR2-800 @ CL=6)
Voltage = 1.8V

DDR2 SDRAM COMPONENTS

Density	Organization	Part Number	# Pins-Package	Dimensions	Package	Speed (Mbps)	Production
256Mb	16Mx16	K4T56163QN-HC(E6/F7/E7/F8)	84-FBGA	7.5x12.5mm	Lead free & Halogen free	667/800/1066	Now
512Mb	128M x4	K4T51043QI-HC(E6/F7/E7)	60-FBGA	7.5x9.5mm	Lead free & Halogen free	667/800	Now
	64M x8	K4T51083QI-HC(E6/F7/E7/F8)	60-FBGA	7.5x9.5mm	Lead free & Halogen free	667/800/1066	Now
	32M x16	K4T51163QI-HC(E6/F7/E7/F8)	84-FBGA	7.5x12.5mm	Lead free & Halogen free	667/800/1066	Now
	128M x4	K4T51043QJ-HC(E6/F7/E7)	60-FBGA	7.5x9.5mm	Lead free & Halogen free	667/800	Q3
	64M x8	K4T51083QJ-HC(E6/F7/E7/F8)	60-FBGA	7.5x9.5mm	Lead free & Halogen free	667/800/1066	Q3
	32M x16	K4T51163QJ-HC(E6/F7/E7/F8)	84-FBGA	7.5x12.5mm	Lead free & Halogen free	667/800/1066	Q3
1Gb	256M x4	K4T1G044QF-BC(E6/F7/E7)	60-FBGA	7.5x9.5mm	Lead free & Halogen free	667/800	Now
	128M x8	K4T1G084QF-BC(E6/F7/E7/F8)	60-FBGA	7.5x9.5mm	Lead free & Halogen free	667/800/1066	Now
	64M x16	K4T1G164QF-BC(E6/F7/E7/F8)	84-FBGA	7.5x12.5mm	Lead free & Halogen free	667/800/1066	Now

NOTES: E6 = DDR2-667 (5-5-5)
F7 = DDR2-800 (6-6-6)
E7 = DDR2-800 (5-5-5)
F8 = DDR2-1066 (7-7-7)
Voltage = 1.8V

Package Type
H = FBGA (Lead-free & Halogen-free)
B = FBGA (Lead-free & Halogen-free, Flip Chip)

DDR SDRAM COMPONENTS

Density	Organization	Part Number	# Pins - Package	Speed (Mbps)
512Mb	128Mx4	K4H510438J-LCB3/B0	66-TSOP	266/333
		K4H510438J-HCCC/B3	60-FBGA	333/400
	64Mx8	K4H510838J-LCCC/B3	66-TSOP	333/400
		K4H510838J-HCCC/B3	60-FBGA	333/400
	32Mx16	K4H511638J-LCCC/B3	66-TSOP	333/400
256Mb	64Mx4	K4H560438N-LCB3/B0	66-TSOP	266/333
	32Mx8	K4H560838N-LCCC/B3	66-TSOP	333/400
	16Mx16	K4H561638N-LCCC/B3	66-TSOP	333/400
128Mb	8Mx16	K4H2816380-LCCC	66-TSOP	400

NOTES: B0 = DDR266 (133MHz @ CL=2.5) A2 = DDR266 (133MHz @ CI=2) B3 = DDR333 (166MHz @ CL=2.5) CC = DDR400 (200MHz @ CL=3)

SDRAM COMPONENTS

Density	Organization	Part Number	# Pins - Package	Speed (Mbps)	Refresh
256Mb	64Mx4	K4S560432N-LC(L)75000	54-TSOP	133	8K
	32Mx8	K4S560832N-LC(L)75000	54-TSOP	133	8K
	16Mx16	K4S561632N-LC(L)(75/60)000	54-TSOP	133/166	8K
128Mb	16Mx8	K4S2808320-LC(L)75000	54-TSOP	133	4K
	8Mx16	K4S2816320-LC(L)(75/60)000	54-TSOP	133/166	4K

NOTES: L = Commercial Temp., Low Power
For Industrial Temperature, check with SSI Marketing
Banks: 4
All products are Lead Free
Voltage: 3.3V
Speed: PC133 (133MHz CL=3/PC100 CL2)

MOBILE DRAM COMPONENTS

Type	Density	Organization	Part Number	Package	Power	Production
MSDR	512Mb	32Mx16	K4M51163PI-BG(1)	54-FBGA	1.8V	Now
		16Mx32	K4M51323PI-HG(1)	90-FBGA	1.8V	Now
MDDR	256Mb	16Mx16	K4X56163PN-FG(1)	60-FBGA	1.8V	Now
		8Mx32	K4X56323PN-8G(1)	90-FBGA	1.8V	Now
	512Mb	32Mx16	K4X51163PI-FG(1)	60-FBGA	1.8V	Now
		16Mx32	K4X51323PI-8G(1)	90-FBGA	1.8V	Now
	1Gb	32Mx32	K4X1G323PF-8G(1)	90-FBGA	1.8V	Now
	2Gb	64Mx32	K4X2G323PC-8G(1)	90-FBGA	1.8V	Now
	4Gb	x32 (2CS, 2CKE)	K4X4G303PC-AG(1)	168-FBGA, 12x12 PoP, DDP	1.8V	Now
		x32 (2CS, 2CKE)	K4X4G303PC-7G(1)	240-FBGA, 14x14 PoP, DDP	1.8V	Now
LPDDR2	1Gb	1CH x32	K4P1G324EE-AG(1)	168-FBGA, 12x12 PoP	1.2V	Now
	2Gb	1CH x32	K4P2G324EC-AG(1)	168-FBGA, 12x12 PoP	1.2V	Now
		2CH x32/ch	K3PE3E300M-XG(1)	216-FBGA, 12x12 PoP	1.2V	Now
	4Gb	1CH x32	K4P4G304EC-AG(1)	168-FBGA, 12x12 PoP, DDP, 64Mx32*2	1.2V	Now
		1CH x32	K4P4G154EC-FG(1)	134-FBGA, 11x11.5 PoP, DDP, 128x16*2	1.2V	Now
		1CH x32	K4P4G324EB-FG(1)	168-FBGA, 12x12 PoP, MONO, 128Mx32	1.2V	Now
		2CH x32/ch	K3PE4E400M-XG(1)	216-FBGA, 12x12 PoP, QDP, 64Mx32*2	1.2V	Now
		2CH x32/ch	K3PE4E400A-XG(1)	240-FBGA, 14x14 PoP, QDP, 64Mx32*2	1.2V	Now
	8Gb	1CH x32	K4P8G304EC-FC(1)	134-FBGA, 11x11.5 PoP, QDP, 128x16*4	1.2V	Now
		2CH x32/ch	K3PE8E800M-XG(1)	216-FBGA, 12x12 PoP, QDP, 64Mx32*4	1.2V	Now
		2CH x32/ch	K3PE7E700M-XG(1)	216-FBGA, 12x12 PoP, DDP, 128Mx32*2	1.2V	Now
		2CH x32/ch	K3PE7E700A-XG(1)	240-FBGA, 14x14 PoP, DDP, 128Mx32*2	1.2V	Now
	16Gb	2CH x32/ch	K3PE0E00M-XG(1)	216-FBGA, 12x12 PoP, QDP, 128Mx32*4	1.2V	Now

NOTES: **(1) Speed:**
Mobile-SDR
60: 166MHz, CL3
75: 133MHz, CL3
Mobile-DDR
D8: 200MHz, CL3
C6: 166MHz, CL3
LPDDR2
C1: 800Mbps

All products offered at Extended, Low, i-TCSR & PASR & DS (Temp, Power)

GRAPHICS DRAM COMPONENTS

Type	Density	Organization	Part Number	Package	VDD/VDDQ	Speed Bin (MHz)
GDDR5	2Gb	64Mx32	K4G20325FC-HC(1)	170-FBGA	1.5/1.5V	2000/2500/3000
			K4G20325FC-HC04	170-FBGA	1.35V/1.35V	1800
			K4G20325FC-HC03	170-FBGA	1.35V/1.35V	2000
	1Gb	32Mx32	K4G10325FE-HC(1)	170-FBGA	1.5/1.5V	2000/2500
			K4G10325FE-HC04	170-FBGA	1.35V/1.35V	1800
GDDR3	1Gb	32Mx32	K4J10324KE-HC(1)	136-FBGA	1.8V/1.8V	700/800/1000/1200
	512Mb	16Mx32	K4J52324KI-HC(1)	136-FBGA	1.8/1.8V	700/800/1000
gDDR3	2Gb	128Mx16	K4W2G1646C-HC(1)	96 FBGA	1.5V/1.5V	800/933/1066
	1Gb	64Mx16	K4W1G1646G-BC(1)	96 FBGA	1.5V/1.5V	800/933/1066
gDDR2	1Gb	64Mx16	K4N1G164QE-HC(1)	84-FBGA	1.8/1.8V	400/500

NOTES: **Package**
H: FBGA (Halogen Free & Lead Free)
B: FBGA (Halogen Free & Lead Free)

(1) Speeds (clock cycle - speed bin)
03: 0.3ns (3000MHz)
04: 0.4ns (2500MHz)
05: 0.5ns (2000MHz)
5C: 0.555 (1800MHz)
08: 0.83ns (1200MHz)
1A: 1ns (1000MHz GDDR3)
1A: 1ns (1066MHz gDDR3)
11: 1.1ns (933MHz)
12: 1.25ns (800MHz)
14: 1.429ns (700MHz)
20: 2.0ns (500MHz)
25: 2.5ns (400MHz)

COMPONENT DRAM ORDERING INFORMATION

1	2	3	4	5	6	7	8	9	10	11
K	4	T	XX	XX	X	X	X	X	X	XX

- 1: SAMSUNG Memory
- 2: DRAM
- 3: DRAM Type
- 4, 5: Density, Bit Organization
- 6: Number of Internal Banks
- 7: Interface (VDD, VDDQ)
- 8: Revision
- 9: Package Type
- 10: Temp & Power
- 11: Speed

1. Memory (K)

2. DRAM: 4

3. DRAM Type

- B: DDR3 SDRAM
- D: GDDR SDRAM
- G: GDDR5 SDRAM
- H: DDR SDRAM
- J: GDDR3 SDRAM
- M: Mobile SDRAM
- N: SDDR2 SDRAM
- S: SDRAM
- T: DDR SDRAM
- U: GDDR4 SDRAM
- V: Mobile DDR SDRAM Power Efficient Address
- W: SDDR3 SDRAM
- X: Mobile DDR SDRAM
- Y: XDR DRAM
- Z: Value Added DRAM

4. Density

- 10: 1G, 8K/32ms
- 16: 16M, 4K/64ms
- 26: 128M, 4K/32ms
- 28: 128M, 4K/64ms
- 32: 32M, 2K/32ms
- 50: 512M, 32K/16ms
- 51: 512M, 8K/64ms
- 52: 512M, 8K/32ms
- 54: 256M, 16K/16ms
- 55: 256M, 4K/32ms
- 56: 256M, 8K/64ms
- 62: 64M, 2K/16ms
- 64: 64M, 4K/64ms
- 68: 768M, 8K/64ms
- 1G: 1G, 8K/64ms
- 2G: 2G, 8K/64ms
- 4G: 4G, 8K/64ms

5. Bit Organization

- 02: x2
- 04: x4
- 06: x4 Stack (Flexframe)
- 07: x8 Stack (Flexframe)
- 08: x8
- 15: x16 (2CS)
- 16: x16
- 26: x4 Stack (JEDEC Standard)
- 27: x8 Stack (JEDEC Standard)
- 30: x32 (2CS, 2CKE)
- 31: x32 (2CS)
- 32: x32

6. # of Internal Banks

- 2: 2 Banks
- 3: 4 Banks
- 4: 8 Banks
- 5: 16 Banks

7. Interface (VDD, VDDQ)

- 2: LVTTL, 3.3V, 3.3V
- 4: LVTTL, 2.5V, 2.5V
- 5: SSTL-2 1.8V, 1.8V
- 6: SSTL-15 1.5V, 1.5V
- 8: SSTL-2, 2.5V, 2.5V
- A: SSTL, 2.5V, 1.8V
- F: POD-15 (1.5V,1.5V)
- H: SSTL_2 DLL, 3.3V, 2.5V
- M: LVTTL, 1.8V, 1.5V
- N: LVTTL, 1.5V, 1.5V
- P: LVTTL, 1.8V, 1.8V
- Q: SSTL-2 1.8V, 1.8V
- R: SSTL-2, 2.8V, 2.8V
- U: DRSL, 1.8V, 1.2V

8. Revision

- A: 2nd Generation
- B: 3rd Generation
- C: 4th Generation
- D: 5th Generation
- E: 6th Generation
- F: 7th Generation
- G: 8th Generation
- H: 9th Generation
- I: 10th Generation
- J: 11th Generation
- K: 12th Generation
- M: 1st Generation
- N: 14th Generation
- Q: 17th Generation

9. Package Type

DDR SDRAM

- L: TSOP II (Lead-free & Halogen-free)
- H: FBGA (Lead-free & Halogen-free)
- F: FBGA for 64Mb DDR (Lead-free & Halogen-free)
- 6: sTSOP II (Lead-free & Halogen-free)
- T: TSOP II
- N: sTSOP II
- G: FBGA
- U: TSOP II (Lead-free)
- V: sTSOP II (Lead-free)
- Z: FBGA (Lead-free)

DDR2 SDRAM

- Z: FBGA (Lead-free)
- J: FBGA DDP (Lead-free)
- Q: FBGA QDP (Lead-free)
- H: FBGA (Lead-free & Halogen-free)
- M: FBGA DDP (Lead-free & Halogen-free)
- E: FBGA QDP (Lead-free & Halogen-free)
- T: FBGA DSP (Lead-free & Halogen-free, Thin)

DDR3 SDRAM

- Z: FBGA (Lead-free)
- H: FBGA (Halogen-free & Lead-free)

Graphics Memory

- Q: TQFP
- U: TQFP (Lead Free)
- G: 84/144 FBGA
- V: 144 FBGA (Lead Free)
- Z: 84 FBGA(Lead Free)
- T: TSOP
- L: TSOP (Lead Free)
- A: 136 FBGA
- B: 136 FBGA(Lead Free)
- H: FBGA(Hologen Free & Lead Free)
- E: 100 FBGA(Hologen Free & Lead Free)

SDRAM

- L TSOP II (Lead-free & Halogen-free)
- N: STSOP II
- T: TSOP II
- U: TSOP II (Lead-free)
- V: sTSOP II (Lead-free)

COMPONENT DRAM ORDERING INFORMATION

1	2	3	4	5	6	7	8	9	10	11
K	4	T	XX	XX	X	X	X	X	X	XX

1. SAMSUNG Memory
2. DRAM
3. DRAM Type
4. Density
5. Bit Organization
6. Number of Internal Banks
7. Interface (VDD, VDDQ)
8. Revision
9. Package Type
10. Temp & Power
11. Speed

XDR DRAM

J: BOC(LF) P: BOC

Mobile DRAM

Leaded / Lead Free

G/A: 52balls FBGA Mono
R/B: 54balls FBGA Mono
X /Z: 54balls BOC Mono
J /V: 60(72)balls FBGA Mono 0.5pitch
L /F: 60balls FBGA Mono 0.8pitch
S/D: 90balls FBGA

Monolithic (11mm x 13mm)

F/H: Smaller 90balls FBGA Mono
Y/P: 54balls CSP DDP
M/E: 90balls FBGA DDP

10. Temp & Power - COMMON (Temp, Power)

C: Commercial, Normal (0'C – 95'C) & Normal Power
C: (Mobile Only) Commercial (-25 ~ 70'C), Normal Power
J: Commercial, Medium
L: Commercial, Low (0'C – 95'C) & Low Power
L: (Mobile Only) Commercial, Low, i-TCSR
F: Commercial, Low, i-TCSR & PASR & DS
E: Extended (-25~85'C), Normal
N: Extended, Low, i-TCSR
G: Extended, Low, i-TCSR & PASR & DS
I: Industrial, Normal (-40'C – 85'C) & Normal Power
P: Industrial, Low (-40'C – 85'C) & Low Power
H: Industrial, Low, i-TCSR & PASR & DS

11. Speed (Wafer/Chip Biz/BGD: 00)

DDR SDRAM

CC: DDR400 (200MHz @ CL=3, tRCD=3, tRP=3)
B3: DDR333 (166MHz @ CL=2.5, tRCD=3, tRP=3) *1
A2: DDR266 (133MHz @ CL=2 , tRCD=3, tRP=3)
B0: DDR266 (133MHz @ CL=2.5, tRCD=3, tRP=3)

Note 1: "B3" has compatibility with "A2" and "B0"

DDR2 SDRAM

CC: DDR2-400 (200MHz @ CL=3, tRCD=3, tRP=3)
D5: DDR2-533 (266MHz @ CL=4, tRCD=4, tRP=4)
E6: DDR2-667 (333MHz @ CL=5, tRCD=5, tRP=5)
F7: DDR2-800 (400MHz @ CL=6, tRCD=6, tRP=6)
E7: DDR2-800 (400MHz @ CL=5, tRCD=5, tRP=5)

DDR3 SDRAM

F7: DDR3-800 (400MHz @ CL=6, tRCD=6, tRP=6)
F8: DDR3-1066 (533MHz @ CL=7, tRCD=7, tRP=7)
G8: DDR3-1066 (533MHz @ CL=8, tRCD=8, tRP=8)
H9: DDR3-1333 (667MHz @ CL=9, tRCD=9, tRP=9)
K0: DDR3-1600 (800MHz @ CL=11, tRCD=11, tRP=11)

Graphics Memory

18: 1.8ns (550MHz)
04: 0.4ns (2500MHz)
20: 2.0ns (500MHz)
05: 0.5ns (2000MHz)
22: 2.2ns (450MHz)
5C: 0.56ns (1800MHz)
25: 2.5ns (400MHz)
06: 0.62ns (1600MHz)
2C: 2.66ns (375MHz)
6A: 0.66ns (1500MHz)
2A: 2.86ns (350MHz)
07: 0.71ns (1400MHz)
33: 3.3ns (300MHz)
7A: 0.77ns (1300MHz)
36: 3.6ns (275MHz)
08: 0.8ns (1200MHz)
40: 4.0ns (250MHz)
09: 0.9ns (1100MHz)
45: 4.5ns (222MHz)
1 : 1.0ns (1000MHz)
50/5A: 5.0ns (200MHz)
1 : 1.1ns (900MHz)
55: 5.5ns (183MHz)
12: 1.25ns (800MHz)
60: 6.0ns (166MHz)
14: 1.4ns (700MHz)
16: 1.6ns (600MHz)

SDRAM (Default CL=3)

50: 5.0ns (200MHz CL=3)
60: 6.0ns (166MHz CL=3)
67: 6.7ns
75: 7.5ns PC133 (133MHz CL=3)

XDR DRAM

A2: 2.4Gbps, 36ns, 16Cycles
B3: 3.2Gbps, 35ns, 20Cycles
C3: 3.2Gbps, 35ns, 24Cycles
C4: 4.0Gbps, 28ns, 24Cycles
DS: Daisychain Sample

Mobile-SDRAM

60: 166MHz, CL 3
75: 133MHz, CL 3
80: 125MHz, CL 3
1H: 105MHz, CL 2
1L: 105MHz, CL 3
15: 66MHz, CL 2 & 3

Mobile-DDR

C3: 133MHz, CL 3
C2: 100MHz, CL 3
C0: 66MHz, CL 3

Note: All of Lead-free or Halogen-free product are in compliance with RoHS

MODULE DRAM ORDERING INFORMATION

1	2	3	4	5	6	7	8	9	10	11	12	13
M	X	XX	T	XX	X	X	X	X	X	X	XX	X

- 1: SAMSUNG Memory
- 2: DIMM
- 3: Data bits
- 4: DRAM Component Type
- 5: Depth
- 6: Number of Banks
- 7: Bit Organization
- 8: Component Revision
- 9: Package
- 10: PCB Revision
- 11: Temp & Power
- 12: Speed
- 13: AMB Vendor

1. Memory Module: M

2. DIMM Type

3: DIMM
4: SODIMM

3. Data bits

12: x72 184pin Low Profile Registered DIMM
63: x63 PC100 / PC133 µSODIMM with SPD for 144pin
64: x64 PC100 / PC133 SODIMM with SPD for 144pin (Intel/JEDEC)
66: x64 Unbuffered DIMM with SPD for 144pin/168pin (Intel/JEDEC)
68: x64 184pin Unbuffered DIMM
70: x64 200pin Unbuffered SODIMM
71: x64 204pin Unbuffered SODIMM
74: x72 /ECC Unbuffered DIMM with SPD for 168pin (Intel/JEDEC)
77: x72 /ECC PLL + Register DIMM with SPD for 168pin (Intel PC100)
78: x64 240pin Unbuffered DIMM
81: x72 184pin ECC unbuffered DIMM
83: x72 184pin Registered DIMM
90: x72 /ECC PLL + Register DIMM
91: x72 240pin ECC unbuffered DIMM
92: x72 240pin VLP Registered DIMM
93: x72 240pin Registered DIMM
95: x72 240pin Fully Buffered DIMM with SPD for 168pin (JEDEC PC133)

4. DRAM Component Type

B: DDR3 SDRAM (1.5V VDD)
L: DDR SDRAM (2.5V VDD)
S: SDRAM
T: DDR2 SDRAM (1.8V VDD)

5. Depth

09: 8M (for 128Mb/512Mb)
17: 16M (for 128Mb/512Mb)
16: 16M
28: 128M
29: 128M (for 128Mb/512Mb)
32: 32M
33: 32M (for 128Mb/512Mb)
51: 512M
52: 512M (for 512Mb/2Gb)
56: 256M
57: 256M (for 512Mb/2Gb)
59: 256M (for 128Mb/512Mb)
64: 64M
65: 64M (for 128Mb/512Mb)
1G: 1G
1K: 1G (for 2Gb)

6. # of Banks in Comp. & Interface

1: 4K/64mxRef., 4Banks & SSTL-2
2 : 8K/ 64ms Ref., 4Banks & SSTL-2
2: 4K/ 64ms Ref., 4Banks & LVTTL (SDR Only)
5: 8K/ 64ms Ref., 4Banks & LVTTL (SDR Only)
5: 4Banks & SSTL-1.8V
6: 8Banks & SSTL-1.8V

7. Bit Organization

0: x 4
3: x 8
4: x16
6: x 4 Stack (JEDEC Standard)
7: x 8 Stack (JEDEC Standard)
8: x 4 Stack
9: x 8 Stack

8. Component Revision

A: 2nd Gen.
B: 3rd Gen.
C: 4th Gen.
D: 5th Gen.
E: 6th Gen.
F: 7th Gen.
G: 8th Gen.
M: 1st Gen.
Q: 17th Gen.

9. Package

E: FBGA QDP (Lead-free & Halogen-free)
G: FBGA
H: FBGA (Lead-free & Halogen-free)
J: FBGA DDP (Lead-free)
M: FBGA DDP (Lead-free & Halogen-free)
N: sTSOP
Q: FBGA QDP (Lead-free)
T: TSOP II (400mil)
U: TSOP II (Lead-Free)
V: sTSOP II (Lead-Free)
Z: FBGA(Lead-free)

10. PCB Revision

0: Mother PCB
1: 1st Rev
2: 2nd Rev.
3: 3rd Rev.
4: 4th Rev.
A: Parity DIMM
S: Reduced PCB
U: Low Profile DIMM

11. Temp & Power

C: Commercial Temp. (0°C ~ 95°C) & Normal Power
L: Commercial Temp. (0°C ~ 95°C) & Low Power

12. Speed

CC: (200MHz @ CL=3, tRCD=3, tRP=3)
D5: (266MHz @ CL=4, tRCD=4, tRP=4)
E6: (333MHz @ CL=5, tRCD=5, tRP=5)
F7: (400MHz @ CL=6, tRCD=6, tRP=6)
E7: (400MHz @ CL=5, tRCD=5, tRP=5)
F8: (533MHz @ CL=7, tRCD=7, tRP=7)
G8: (533MHz @ CL=8, tRCD=8, tRP=8)
H9: (667MHz @ CL=9, tRCD=9, tRP=9)
K0: (800MHz @ CL=10, tRCD=10, tRP=10)
7A: (133MHz CL=3/PC100 CL2)

13. AMB Vendor for FBDIMM

0, 5: Intel
1, 6, 8: IDT
9: Montage

Note: All of Lead-free or Halogen-free product are in compliance with RoHS

SLC FLASH

Family	Density	Part Number	Package Type	Org.	Vol(V)	MOQ		Status
						Tray -xxxx0xx	T/R -xxx0Txx	
16Gb Based	128Gb ODP	K9QDGD8S5M-HCB*	BGA	x8	1.8	960	1000	C/S
		K9QDGD8U5M-HCB*	BGA	x8	3.3	960	1000	C/S
		K9QDG08U5M-HCB*	BGA	x8	3.3	960	1000	C/S
	64Gb QDP	K9WCGD8S5M-HCB*	BGA	x8	1.8	960	1000	C/S
		K9WCGD8U5M-HCB*	BGA	x8	3.3	960	1000	C/S
		K9WCG08U5M-HCB*	BGA	x8	3.3	960	1000	C/S
		K9WCG08U5M-HIB*	BGA	x8	3.3	960	1000	C/S
	32Gb DDP	K9KBGD8S1M-HCB*	BGA	x8	1.8	960	1000	C/S
		K9KBGD8U1M-HCB*	BGA	x8	3.3	960	1000	C/S
		K9KBGD8U1M-HIB*	BGA	x8	3.3	960	1000	C/S
		K9KBG08U1M-HCB*	BGA	x8	3.3	960	1000	C/S
		K9KBG08U1M-HIB*	BGA	x8	3.3	960	1000	C/S
	16Gb Mono	K9FAG08U0M-HCB*	BGA	x8	3.3	960	1000	C/S
		K9FAG08U0M-HIB*	BGA	x8	3.3	960	1000	C/S
4Gb Based	16Gb QDP	K9WAG08U1D-SCB0	TSOP1 HF&LF	x8	3.3	960	1000	C/S
		K9WAG08U1D-SIB0	TSOP1 HF&LF	x8	3.3	960	1000	C/S
		K9WAG08U1B-PCB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
		K9WAG08U1B-PIB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
		K9WAG08U1B-KIB0	ULGA HF & LF	x8	3.3	960	2000	EOL Scheduled
	8Gb DDP	K9K8G08U0D-SCB0	TSOP1 HF&LF	X8	3.3	960	1000	C/S
		K9K8G08U0D-SIB0	TSOP1 HF&LF	x8	3.3	960	1000	C/S
		K9K8G08U0B-PCB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
		K9K8G08U0B-PIB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
		K9K8G08U1B-KIB0	ULGA HF & LF	x8	3.3	960	2000	EOL Scheduled
	4Gb Mono	K9F4G08U0D-SCB0	TSOP1 HF & LF	x8	3.3	960	1000	C/S
		K9F4G08U0D-SIB0	TSOP1 HF& LF	X8	3.3	960	1000	C/S
		K9F4G08U0B-PCB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
		K9F4G08U0B-PIB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
		K9F4G08U0B-KIB0	ULGA HF & LF	x8	3.3	960	2000	EOL Scheduled
2Gb Based	2Gb Mono	K9F2G08U0C-SCB0	TSOP-LF/HF	x8	3.3	960	1000	C/S
		K9F2G08U0C-SIB0	TSOP-LF/HF	x8	3.3	960	1000	C/S
		K9F2G08U0B-PCB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
		K9F2G08U0B-PIB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
1Gb Based	1Gb Mono	K9F1G08U0D-SCB0	TSOP-LF/HF	x8	3.3	960	1000	C/S
		K9F1G08U0D-SIB0	TSOP-LF/HF	x8	3.3	960	1000	C/S
		K9F1G08U0C-PCB0	TSOP1	x8	3.3	960	1000	EOL Scheduled
		K9F1G08U0C-PIB0	TSOP1	x8	3.3	960	1000	EOL Scheduled

*D=DDR and 0=SDR
Please contact your local Samsung sales representative for latest product offerings.
Note: All parts are lead free

MLC FLASH

Type	Family	Density	Technology	Part Number	Package Type	Org.	Vol(V)	MOQ		Status
								Tray -xxxx0xx	T/R -xxx0Txx	
2bit	32Gb Based	256Gb ODP	32nm Ep-MLC	K9PFGD8U5M-HCE*	BGA	x8	3.3	720	-	C/S Now
		128Gb QDP	32nm Ep-MLC	K9HDGD8U5M-HCE*	BGA	x8	3.3	720	-	C/S Now
		64Gb DDP	32nm Ep-MLC	K9LCGD8U1M-HCE*	BGA	x8	3.3	720	-	C/S Now
	64Gb Based	256Gb ODP	35nm	K9ACGD8U0M-SCB*	52LGA	x8	3.3	720	2000	MP
	32Gb Based	128Gb QDP	27nm	K9HDG08U1A-SCB*	48TSOP	x8	3.3	960	1000	MP
		64Gb DDP	27nm	K9LCG08U0A-SCB*	48TSOP	x8	3.3	960	1000	MP
		32Gb mono	27nm	K9GBG08U0A-SCB*	48TSOP	x8	3.3	960	1000	MP
	16GB Based	64Gb QDP	32nm	K9HCG08U1E-SCB*	48TSOP	x8	3.3	960	1000	MP
		32Gb DDP	32nm	K9LBG08U0E-SCB*	48TSOP	x8	3.3	960	1000	MP
		16Gb mono	32nm	K9GAG08U0E-SCB*	48TSOP	x8	3.3	960	1000	MP
	8Gb Based	8Gb	32nm	K9G8G08U0C-SCB*	48TSOP	x8	3.3	960	1000	MP
3bit	64Gb Based	256Gb QDP	3bit_27nm DDR	K9CFGD8U1M-SCB*	TSOP	x8	3.3	960	-	C/S Now
		128Gb DDP	3bit_27nm DDR	K9BDGD8U0M-SCB*	TSOP	x8	3.3	960	-	C/S Now
		64Gb mono	3bit_27nm DDR	K9ACGD8U0M-SCB*	TSOP	x8	3.3	960	-	C/S Now

*D=DDR and 0=SDR Please contact your local Samsung sales representative for latest product offerings. Note: All parts are lead free

SD and MicroSD FLASH CARDS

Application	Density
SD Cards	2GB
	4GB
	8GB
	16GB
	32GB
uSD Cards	2GB
	4GB
	8GB
	16GB
	32GB

Please contact your local Samsung sales representative for part numbers and latest product offerings.

moviNAND™ (eMMC)

Density	Part Number	Package Type	Org.	Vol (V)	Status
2GB	KLM2G1DEHE-B101xxx	11.5x13	x8	1.8/3.3	C/S MP
4GB	KLM4G1FEQA-A001xxx	12x16	x8	1.8/3.3	CS-April
8GB	KLMCGAFEJA-B001xxx	12x16	x8	1.8/3.3	C/S MP
16GB	KLMBG8FEJA-A001xxx	12x16	x8	1.8/3.3	C/S MP
32GB	KLMAG4FEJA-A001xxx	12x16	x8	1.8/3.3	C/S MP
64GB	KLM8G2FEJA-A001xxx	14x18	x8	1.8/3.3	C/S MP

SOLID STATE DRIVES (SSD)

Interface	Size	Connector	Controller	Component	Density	Part Number
SATA II - MLC	2.5" 7mmT	Thin SATA	PM810	16Gb	64GB	MZ7PA064HMCD-01000
					128GB	MZ7PA128HMCD-01000
					256GB	MZ7PA256HMDR-01000
	2.5" 9.5mmT	Thin SATA	PM810	16Gb	64GB	MZ5PA064HMCD-01000
					128GB	MZ5PA128HMCD-01000
					256GB	MZ5PA256HMDR-01000
	mSATA	PCIe	PM810	16Gb	32GB	MZMPA032HMCD-00000
					64GB	MZMPA064HMDR-00000
					128GB	MZMPA128HMFU-00000

Please contact your local Samsung sales representative for latest product offerings Note: All parts are lead free

FLASH PRODUCT ORDERING INFORMATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
K	9	X	X	X	X	X	X	X	X	-	X	X	X	X

- 1 : SAMSUNG Memory
- 2 : NAND Flash
- 3 : Small Classification
- 4 : Density
- 5 : Density
- 6 : Organization
- 7 : Organization
- 8 : Vcc
- 9 : Mode
- 10 : Generation
- 11 : ---
- 12 : Package
- 13 : Temp
- 14 : Customer Bad Block
- 15 : Pre-Program Version

1. Memory (K)

2. NAND Flash : 9

3. Small Classification

(SLC : Single Level Cell, MLC : Multi Level Cell)

7 : SLC moviNAND
8 : MLC moviNAND
F : SLC Normal
G : MLC Normal
H : MLC QDP
K : SLC DDP
L : MLC DDP
M : MLC DSP
N : SLC DSP
P : MLC 8 Die Stack
Q : SLC 8 Die Stack
S : SLC Single SM
T : SLC SINGLE (S/B)
U : 2 Stack MSP
W : SLC 4 Die Stack

4~5. Density

12 : 512M
56 : 256M
1G : 1G
2G : 2G
4G : 4G
8G : 8G
AG : 16G BG :
32G CG : 64G
DG : 128G
EG : 256G
LG : 24G
NG : 96G
ZG : 48G
00 : NONE

6~7. Organization

00 : NONE
08 : x8
16 : x16

8. Vcc

A : 1.65V~3.6V
B : 2.7V (2.5V~2.9V)
C : 5.0V (4.5V~5.5V)
D : 2.65V (2.4V~2.9V)
E : 2.3V~3.6V
R : 1.8V (1.65V~1.95V)
Q : 1.8V (1.7V~1.95V)
T : 2.4V~3.0V
U : 2.7V~3.6V
V : 3.3V (3.0V~3.6V)
W : 2.7V~5.5V, 3.0V~5.5V
0 : NONE

9. Mode

0 : Normal
1 : Dual nCE & Dual R/nB
3 : Tri /CE & Tri R/B
4 : Quad nCE & Single R/nB
5 : Quad nCE & Quad R/nB
9 : 1st block OTP
A : Mask Option 1
L : Low grade

10. Generation

M : 1st Generation
A : 2nd Generation
B : 3rd Generation
C : 4th Generation
D : 5th Generation

11. " ----"

12. Package

A : COB
B : FBGA (Halogen-Free, Lead-Free)
C : CHIP BIZ D : 63-TBGA
F : WSOP (Lead-Free) G : FBGA
H : TBGA (Lead-Free)
I : ULGA (Lead-Free) (12*17)
J : FBGA (Lead-Free)
L : ULGA (Lead-Free) (14*18)
M : TLGA N : TLGA2
P : TSOP1 (Lead-Free)
Q : TSOP2 (Lead-Free)
S : TSOP1 (Halogen-Free, Lead-Free)
T : TSOP2 U : COB (MMC)
V : WSOP W : Wafer
Y : TSOP1 Z : WELP (Lead-Free)

13. Temp

C : Commercial I : Industrial
0 : NONE (Containing Wafer, CHIP, BIZ, Exception handling code)

14. Customer Bad Block

B : Include Bad Block
D : Daisychain Sample
L : 1~5 Bad Block
N : ini. 0 blk, add. 10 blk
S : All Good Block
0 : NONE (Containing Wafer, CHIP, BIZ, Exception handling code)

15. Pre-Program Version

0 : None
Serial (1~9, A~Z)

HIGH-SPEED ASYNCHRONOUS SRAM

Density	Organization	Part Number	Package	Vcc (V)	Speed (ns)	Operating Temp.	Operating Current (mA)	Standby Current (uA)	Production Status
4Mb	256Kx16	K6R4016C1D	44-SOJ, 44-TSOP2	5	10	I	65, 55	20, 5	Mass Production
		K6R4016V1D	44-SOJ, 44-TSOP2	3.3	10	I	80, 65	20, 5 (1.2)	Mass Production
	512Kx8	K6R4008C1D	36-SOJ, 44-TSOP2	5	10	I	65, 55	20, 5	Mass Production
		K6R4008V1D	36-SOJ, 44-TSOP2	3.3	10	I	80, 65	20, 5	Mass Production

SYNCHRONOUS SRAM SPB & SB

Density	Organization	Part Number	Package	Operating Mode	Vdd (V)	Access Time tCD (ns)	Cycle Time (MHz)	I/O Voltage (V)	Production Status	Comments
36Mb	2Mx18	K7A321830C	100-TQFP	SPB	3.3, 2.5	3.1	200	3.3, 2.5	Mass Production	2E1D
		K7B321835C	100-TQFP	SB	3.3, 2.5	7.5	118	3.3, 2.5	Mass Production	
	1Mx36	K7A323630C	100-TQFP	SPB	3.3, 2.5	3.1	200	3.3, 2.5	Mass Production	2E1D
		K7B323635C	100-TQFP	SB	3.3, 2.5	7.5	118	3.3, 2.5	Mass Production	
18Mb	1Mx36	K7A163630B	100-TQFP	SPB	3.3, 2.5	2.6, 3.5	250, 167	3.3, 2.5	Mass Production	2E1D
		K7A163631B	100-TQFP	SPB	3.3, 2.5	3.1	200	3.3, 2.5	Mass Production	2E2D
		K7B163635B	100-TQFP	SB	3.3, 2.5	7.5	117	3.3, 2.5	Mass Production	
	1Mx18	K7A161830B	100-TQFP	SPB	3.3, 2.5	2.6, 3.5	250, 167	3.3, 2.5	Mass Production	2E1D
		K7A161831B	100-TQFP	SPB	3.3, 2.5	3.1	200	3.3, 2.5	Mass Production	2E2D
		K7B161835B	100-TQFP	SB	3.3, 2.5	7.5	117	3.3, 2.5	Mass Production	
8Mb	256Kx36	K7A803609B	100-TQFP	SPB	3.3	2.6	250	3.3,2.5	Not for new designs	2E1D
		K7A803600B	100-TQFP	SPB	3.3	3.5	167	3.3,2.5	Not for new designs	2E1D
		K7B803625B	100-TQFP	SB	3.3	6.5	133	3.3,2.5	Not for new designs	
	512Kx18	K7A801809B	100-TQFP	SPB	3.3	2.6	250	3.3,2.5	Not for new designs	2E1D
		K7A801800B	100-TQFP	SPB	3.3	3.5	167	3.3,2.5	Not for new designs	2E1D
		K7B801825B	100-TQFP	SB	3.3	6.5	133	3.3,2.5	Not for new designs	
4Mb	128Kx36	K7A403609B	100-TQFP	SPB	3.3	2.4	250	3.3, 2.5	Not for new designs	2E1D
		K7A403600B	100-TQFP	SPB	3.3	3.5	167	3.3, 2.5	Not for new designs	2E1D
		K7B403625B	100-TQFP	SB	3.3	6.5	133	3.3, 2.5	Not for new designs	
		K7A403200B	100-TQFP	SPB	3.3	3.5	167	3.3, 2.5	Not for new designs	2E1D
	256Kx18	K7A401809B	100-TQFP	SPB	3.3	2.4	250	3.3, 2.5	Not for new designs	2E1D
		K7A401800B	100-TQFP	SPB	3.3	3.5	167	3.3, 2.5	Not for new designs	2E1D
		K7B401825B	100-TQFP	SB	3.3	6.5	133	3.3, 2.5	Not for new designs	

NOTES: All TQFP products are Lead Free
2E1D = 2-cycle Enable and 1-cycle Disable
2E2D = 2-cycle Enable and 2-cycle Disable
SPB speed recommendations: For 200MHz use 250MHz; For 133MHz use 167MHz
SB speed recommendation: Use 7.5ns Access Time; Use 6.5ns Access Time

NtRAM

Type	Density	Organization	Part Number	Package	Operating Mode	Vdd (V)	Access Time tCD (ns)	Speed tCYC (MHz)	I/O Voltage (V)	Production Status
NtRAM	72Mb	2Mx36	K7N643645M	100-TQFP	SPB	2.5	2.6, 3.5	250, 167	2.5	Mass Production
		4Mx18	K7N641845M	100-TQFP	SPB	2.5	2.6, 3.5	250, 167	2.5	Mass Production
	36Mb	1Mx36	K7N323631C	100-TQFP, 165FBGA	SPB	3.3, 2.5	2.6, 3.5	250, 167	3.3, 2.5	Mass Production
		2Mx18	K7N321831C	100-TQFP, 165FBGA	SPB	3.3, 2.5	2.6, 3.5	250, 167	3.3, 2.5	Mass Production
		1Mx36	K7M323635C	100-TQFP	FT	3.3, 2.5	7.5	118	3.3, 2.5	Mass Production
		2Mx18	K7M321835C	100-TQFP	FT	3.3, 2.5	7.5	118	3.3, 2.5	Mass Production
	18Mb	1Mx18	K7N161831B	100-TQFP, 165FBGA	SPB	3.3, 2.5	2.6, 3.5	250, 167	3.3, 2.5	Mass Production
		512Kx36	K7N163631B	100-TQFP, 165FBGA	SPB	3.3, 2.5	2.6, 3.5	250, 167	3.3, 2.5	Mass Production
		1Mx18	K7M161835B	100-TQFP	FT (SB)	3.3	6.5	133	3.3, 2.5	Mass Production
		512Kx36	K7M163635B	100-TQFP	FT (SB)	3.3	6.5	133	3.3, 2.5	Mass Production
	8Mb	256Kx36	K7N803601B	100-TQFP	SPB	3.3	3.5	167	3.3,2.5	Not for new designs
		512Kx18	K7N801801B	100-TQFP	SPB	3.3	3.5	167	3.3,2.5	Not for new designs
		256Kx36	K7N803609B	100-TQFP	SPB	3.3	2.6	250	3.3,2.5	Not for new designs
		512Kx18	K7N801809B	100-TQFP	SPB	3.3	2.6	250	3.3,2.5	Not for new designs
		256Kx36	K7N803645B	100-TQFP	SPB	2.5	3.5	167	2.5	Not for new designs
		512Kx18	K7N801845B	100-TQFP	SPB	2.5	3.5	167	2.5	Not for new designs
		256Kx36	K7N803649B	100-TQFP	SPB	2.5	2.6	250	2.5	Not for new designs
		512Kx18	K7N801849B	100-TQFP	SPB	2.5	2.6	250	2.5	Not for new designs
		512Kx18	K7M801825B	100-TQFP	FT	3.3	6.5	133	3.3, 2.5	Not for new designs
		256Kx36	K7M803625B	100-TQFP	FT	3.3	6.5	133	3.3, 2.5	Not for new designs
	4Mb	128Kx36	K7N403609B	100-TQFP	SPB	3.3	3	200	3.3,2.5	Not for new designs
		256Kx18	K7N401809B	100-TQFP	SPB	3.3	3	200	3.3,2.5	Not for new designs
SPB and FT	4Mb	256Kx18	K7B401825B	100-TQFP	SB	3.3	6.5	133	3.3, 2.5	Not for new designs

NOTES:
All TQFP products are lead free
NtRAM speed recommendations: For 200MHz use 250MHz; For 133MHz use 167MHz
NtRAM speed recommendation: Use 7.5ns Access Time use 6.5ns Access Time
Recommended SPB speeds are 250MHz and 167MHz Recommended SB Acess Speed is 7.5ns

Late-Write RR SRAM

Density	Organization	Part Number	Package	Operating Mode	Vdd (V)	Access Time tCD (ns)	Speed tCYC (MHz)	I/O Voltage (V)	Production Status
32Mb	1Mx36	K7P323674C	119-BGA	SP	1.8 / 2.5V	1.6, 2.0	300,250	1.5 (Max 1.8)	Mass Production
	2Mx18	K7P321874C	119-BGA	SP	1.8 / 2.5V	1.6, 2.0	300,250	1.5 (Max 1.8)	Mass Production
8Mb	256Kx36	K7P803611B	119-BGA	SP	3.3	1.6	300	1.5 (Max.2.0)	Mass Production
	512Kx18	K7P801811B	119-BGA	SP	3.3	1.6	300	1.5 (Max.2.0)	Mass Production
	256Kx36	K7P803666B	119-BGA	SP	2.5	2	250	1.5 (Max.2.0)	Mass Production
	512Kx18	K7P801866B	119-BGA	SP	2.5	2	250	1.5 (Max.2.0)	Mass Production

DDR SYNCHRONOUS SRAM

Type	Density	Organization	Part Number	Package	Vdd (V)	Access Time tCD (ns)	Cycle Time	I/O Voltage (V)	Production Status	Comments
DDR	16Mb	512Kx36	K7D163674B	153-BGA	1.8~2.5	2.3	330, 300	1.5~1.9	Mass Production	
		1Mx18	K7D161874B	153-BGA	1.8~2.5	2.3	330, 300	1.5~1.9	Mass Production	
	8Mb	256Kx36	K7D803671B	153-BGA	2.5	1.7/1.9/2.1	333, 330, 250	1.5 (Max 2.0)	Not for new designs	
		512Kx18	K7D801871B	153-BGA	2.5	1.7/1.9/2.1	333, 330, 250	1.5 (Max 2.0)	Not for new designs	
DDR II CIO/SIO	72Mb	4Mx18	K7I641882M	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	CIO-2B
			K7I641884M	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	CIO-4B
			K7J641882M	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	SIO-2B
		2Mx36	K7I643682M	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	CIO-2B
			K7I643684M	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	CIO-4B
			K7J643682M	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	SIO-2B
	36Mb	2Mx18	K7I321882C	165-FBGA	1.8	0.45	300,250	1.5,1.8	Mass Production	CIO-2B
			K7I321884C	165-FBGA	1.8	0.45	300,250	1.5,1.8	Mass Production	CIO-4B
			K7J321882C	165-FBGA	1.8	0.45	300,250	1.5,1.8	Mass Production	SIO-2B
		1Mx36	K7I323682C	165-FBGA	1.8	0.45	300,250	1.5,1.8	Mass Production	CIO-2B
			K7I323684C	165-FBGA	1.8	0.45	300,250	1.5,1.8	Mass Production	CIO-4B
			K7J323682C	165-FBGA	1.8	0.45	300,250	1.5,1.8	Mass Production	SIO-2B
	18Mb	1Mx18	K7I161882B	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	CIO-2B
			K7I161884B	165-FBGA	1.8	0.45,0.45,0.45,0.50	250,200,167	1.5,1.8	Mass Production	CIO-4B
			K7J161882B	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	SIO-2B
		512Kx36	K7J163682B	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	SIO-2B
			K7I163682B	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	CIO-2B
			K7I163684B	165-FBGA	1.8	0.45,0.45,0.45,0.50	250,200,167	1.5,1.8	Mass Production	CIO-4B
DDR II+ CIO	36Mb	2Mx18	K7K3218T2C	165-FBGA	1.8	0.45	400	1.5	Mass Production	DDRII + CIO-2B, 2 clocks latancy
			K7K3218U2C	165-FBGA	1.8	0.45	400	2.5	Mass Production	DDRII + CIO-2B, 2.5 clocks latancy
		1Mx36	K7K3236T2C	165-FBGA	1.8	0.45	400, 333	1.5	Mass Production	DDRII + CIO-2B, 2 clocks latancy
			K7K3236U2C	165-FBGA	1.8	0.45	400, 334	2.5	Mass Production	DDRII + CIO-2B, 2.5clocks latancy
	18Mb	1Mx18	K7K1618T2C	165-FBGA	1.8	0.45	400, 333	1.5	Mass Production	DDRII + CIO-2B, 2 clocks latancy
			K7K1618U2C	165-FBGA	1.8	0.45	400, 334	2.5	Mass Production	DDRII + CIO-2B, 2.5clocks latancy
		512Kx36	K7K1636T2C	165-FBGA	1.8	0.45	400, 333	1.5	Mass Production	DDRII + CIO-2B, 2 clocks latancy

NOTES:
2B = Burst of 2
4B = Burst of 4
SIO = Separate I/O
CIO = Common I/O

For DDR II CIO/SIO: C-die use 330, 300, or 250MHz instad of 200MHz or 167MHz using a stable DLL circuit
For DDR II+ CIO: 2-clock latency is available. A 2.5-clock latency can be supported on 18Mb at 500Mhz and 36Mb at 450MHz

QDR SYNCHRONOUS SRAM

Type	Density	Organization	Part Number	Package	Vdd (V)	Access Time tCD (ns)	Cycle Time	I/O Voltage (V)	Production Status	Comments
QDR I	18Mb	1Mx18	K7Q161862B	165-FBGA	1.8v / 2.5v	2.5	167	1.5,1.8	Mass Production	QDR I - 2B
			K7Q161864B	165-FBGA	1.8v / 2.5v	2.5	167	1.5,1.8	Mass Production	QDR I - 4B
		512Kx36	K7Q163662B	165-FBGA	1.8v / 2.5v	2.5	167	1.5,1.8	Mass Production	QDR I - 2B
			K7Q163664B	165-FBGA	1.8v / 2.5v	2.5	167	1.5,1.8	Mass Production	QDR I - 4B
QDR II	72Mb	8Mx9	K7R640982M	165-FBGA	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	Mass Production	QDR II-2B
		4Mx18	K7R641882M	165-FBGA	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	Mass Production	QDR II-2B
			K7R641884M	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	QDR II-4B
		2Mx36	K7R643682M	165-FBGA	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	Mass Production	QDR II-2B
			K7R643684M	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	QDR II-4B
	36Mb	4Mx9	K7R320982C	165-FBGA	1.8	0.45	167, 250, 200	1.5,1.8	Mass Production	QDR II-2B
		2Mx18	K7R321882C	165-FBGA	1.8	0.45	167, 250, 200	1.5,1.8	Mass Production	QDR II-2B
			K7R321884C	165-FBGA	1.8	0.45	200, 300, 250	1.5,1.8	Mass Production	QDR II-4B
		1Mx36	K7R323682C	165-FBGA	1.8	0.45	300, 250, 200	1.5,1.8	Mass Production	QDR II-2B
			K7R323684C	165-FBGA	1.8	0.45	200, 300, 250	1.5,1.8	Mass Production	QDR II-4B
	18Mb	2Mx9	K7R160982B	165-FBGA	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	Mass Production	QDR II - 2B
		1Mx18	K7R161882B	165-FBGA	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	Mass Production	QDR II - 2B
			K7R161884B	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	QDR II - 4B
		512Kx36	K7R163682B	165-FBGA	1.8	0.45,0.45,0.50	250,200,167	1.5,1.8	Mass Production	QDR II - 2B
			K7R163684B	165-FBGA	1.8	0.45,0.45,0.45,0.50	300,250,200,167	1.5,1.8	Mass Production	QDR II - 4B
QDR II+	36Mb	1Mx36	K7S3236T4C	165-FBGA	1.8	0.45	400	1.5	Mass Production	QDR II + 4B, 2 clocks latancy
			K7S3236U4C	165-FBGA	1.8	0.45	400	2.5	Mass Production	QDR II + 4B, 2.5 clocks latancy
		2Mx18	K7S3218T4C	165-FBGA	1.8	0.45	400	1.5	Mass Production	QDR II + 4B, 2 clocks latancy
			K7S3218U4C	165-FBGA	1.8	0.45	400	1.5	Mass Production	QDR II + 4B, 2.5 clocks latancy
	18Mb	1Mx18	K7S1618T4C	165-FBGA	1.8	0.45	400, 333	1.5	Mass Production	QDR II + 4B, 2 clocks latancy
		512Kx36	K7S1636U4C	165-FBGA	1.8	0.45	400, 333	1.5	Mass Production	QDR II + 4B, 2.5 clocks latancy

NOTES: For QDR I, QDR II: 2B = Burst of 2, 4B = Burst of 4
For QDR II (36Mb): C-die use 300, 250MHz or 200MHz instead of 167MHz using a stable DLL circuit
For QDR II (72Mb): 2B = Burst of 2 and 250MHz or 200MHz is recommended, 4B = Burst of 4 and 300MHz or 250MHz is recommended
For QDR II+: 2-clock latency supported. 2.5-clock latency can be supported with 450MHz speed

SYNCHRONOUS SRAM ORDERING INFORMATION

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
K	7	X	X	X	X	X	X	X	X	-	X	X	X	X	X

SAMSUNG Memory	Packaging Type
Sync SRAM	Speed
Small Classification	Speed
Density	Temp, Power
Density	Package
Organization	---
Organization	Generation
Vcc, Interface, Mode	Vcc, Interface, Mode

1. Memory (K)

2. Sync SRAM: 7

3. Small Classification

A: Sync Pipelined Burst
B: Sync Burst
D: Double Data Rate
I: Double Data Rate II, Common I/O
J: Double Data Rate, Separate I/O
K: Double Data II+, Common I/O
M: Sync Burst + NtRAM
N: Sync Pipelined Burst + NtRAM
P: Sync Pipe
Q: Quad Data Rate I
R: Quad Data Rate II
S: Quad Data Rate II+

4~5. Density

80: 8M
16: 18M
40: 4M
32: 36M
64: 72M

6~7. Organization

08: x8
09: x9
18: x18
32: x32
36: x36

8~9. Vcc, Interface, Mode

00: 3.3V,LVTTL,2E1D WIDE
01: 3.3V,LVTTL,2E2D WIDE
08: 3.3V,LVTTL,2E2D Hi SPEED
09: 3.3V,LVTTL,Hi SPEED
11: 3.3V,HSTL,R-R
12: 3.3V,HSTL,R-L
14: 3.3V,HSTL,R-R Fixed ZQ
22: 3.3V,LVTTL,R-R
23: 3.3V,LVTTL,R-L
25: 3.3V,LVTTL,SB-FT WIDE
30: 1.8/2.5/3.3V,LVTTL,2E1D
31: 1.8/2.5/3.3V,LVTTL,2E2D
35: 1.8/2.5/3.3V,LVTTL,SB-FT
44: 2.5V,LVTTL,2E1D
45: 2.5V,LVTTL,2E2D
49: 2.5V,LVTTL,Hi SPEED
52: 2.5V,1.5/1.8V,HSTL,Burst2
54: 2.5V,1.5/1.8V,HSTL,Burst4
62: 2.5V/1.8V,HSTL,Burst2
64: 2.5V/1.8V,HSTL,Burst4
66: 2.5V,HSTL,R-R
74: 1.8V,2.5V,HSTL,All
82: 1.8V,HSTL,Burst2
84: 1.8V,HSTL,Burst4
88: 1.8V,HSTL,R-R
T2: 1.8V,2Clock Latency,Burst2
T4: 1.8V,2Clock Latency,Burst4
U2: 1.8V,2.5Clock Latency,Burst2
U4: 1.8V,2.5Clock Latency,Burst4

10. Generation

M: 1st Generation
A: 2nd Generation
B: 3rd Generation
C: 4th Generation
D: 5th Generation

11. "--"

12. Package

H: BGA,FCBGA,PBGA
G: BGA, FCBGA, FBGA (LF)
F: FBGA
E: FBGA (LF)
Q: (L)QPF
P: (L)QFP(LF)
C: CHIP BIZ
W: WAFER

13. Temp, Power

COMMON (Temp,Power)

0: NONE,NONE (Containing of error handling code)
C: Commercial,Normal
E: Extended,Normal
I: Industrial,Normal

WAFER, CHIP BIZ Level Division

0: NONE,NONE
1: Hot DC sort
2: Hot DC, selected AC sort

14~15. Speed

Sync Burst,Sync Burst + NtRAM

< Mode is R-L > (Clock Accesss Time)

65: 6.5ns
70: 7ns
75: 7.5ns
80: 8ns
85: 8.5ns

Other Small Classification (Clock Cycle Time)

10: 100MHz
11: 117MHz
13: 133MHz
14: 138MHz
16: 166MHz
20: 200MHz
25: 250MHz
26: 250MHz(1.75ns)
27: 275MHz
30: 300MHz
33: 333MHz
35: 350MHz
37: 375MHz
40: 400MHz(t-CYCLE)
42: 425MHz
45: 450MHz
50: 500MHz (except Sync Pipe)

16. Packing Type (16 digit)

- Common to all products, except of Mask ROM
- Divided into TAPE & REEL (In Mask ROM, divided into TRAY, AMMO packing separately)

Type	Packing Type	New Marking
Component	TAPE & REEL	T
	Other (Tray, Tube, Jar)	0 (Number)
	Stack	S
Component	TRAY	Y
(Mask ROM)	AMMO PACKING	A
Module	MODULE TAPE & REEL	P
	MODULE Other Packing	M

MCP: NAND + MDDR

Memory	NAND Density	DRAM Density/Organization	Voltage (NAND-DRAM)	Package
NAND & MDRAM	1Gb (x16)	256/512Mb (x16)	1.8V - 1.8V	130/137FBGA
		512Mb (x32)	1.8V - 1.8V	137FBGA
	2Gb (x16)	1Gb (x16,x32)	1.8V - 1.8V	130/137FBGA
	4Gb (x16)	2Gb (x32)	1.8V - 1.8V	137FBGA
		2Gb*2 (x32, 2CS/2CKE)	1.8V - 1.8V	137FBGA
		2Gb*2 (x32)	1.8V - 1.8V	240FBGA POP
	4Gb*2 (x16)	2Gb*2 (x32, 2CS/2CKE)	1.8V - 1.8V	137FBGA
	8Gb (x16)	2Gb*2 (x32)	1.8V - 1.8V	240FGBA POP

MCP: moviNAND + LPDDR2

Memory	moviNAND Density	DRAM Density/Organization	Voltage	Package
moviNAND & MDRAM	4GB	2Gb*2 (x32, 1ch, 2CS)	1.8V - 1.8V	186FBGA/162FBGA
		4Gb*2 (x32, 1ch, 2CS)	1.8V - 1.8V	186FBGA/162FBGA
	8GB	2Gb*2 (x32, 1ch, 2CS)	1.8V - 1.8V	186FBGA
	16GB	2Gb*2 (x32, 1ch, 2CS)	1.8V - 1.8V	186FBGA
		4Gb*2 (x32, 1ch, 2CS)	1.8V - 1.8V	186FBGA

MCP: NOR + UtRAM

Memory	NOR Density	UtRAM Density/Organization	Voltage	MCP Package
NOR & UtRAM	512Mb (Mux)	256Mb	1.8V - 1.8V	56FBGA
	512Mb (Demux)	128Mb	1.8V - 1.8V	84FBGA
	256Mb (Mux)	128Mb	1.8V - 1.8V	56FBGA
	256Mb (Mux)	64Mb	1.8V - 1.8V	56FBGA
	256Mb (Demux)	64Mb	1.8V - 1.8V	56FBGA
	128Mb (Mux)	64Mb	1.8V - 1.8V	52FBGA
	128Mb (Demux)	64Mb	1.8V - 1.8V	84FBGA

3.5" HARD DISK DRIVES

Family	Capacity (GB)	RPM	Interface	Buffer	Sector	Model
F4	160	7200	SATA 3.0 Gbps	8	512	HD165GJ
	160	7200	SATA 3.1 Gbps	16	512	HD166GJ
	250	7200	SATA 3.2 Gbps	8	512	HD255GJ
	250	7200	SATA 3.3 Gbps	16	512	HD256GJ
	320	7200	SATA 3.4 Gbps	16	512	HD322GJ
F4EG-3	1500	5400	SATA 3.5 Gbps	32	4K	HD155UI
	2000	5400	SATA 3.6 Gbps	32	4K	HD204UI
F3	160	7200	SATA 3.0 Gbps	8	512	HD164GJ
	250	7200	SATA 3.0 Gbps	8	512	HD254GJ
	320	7200	SATA 3.0 Gbps	8	512	HD324HJ
	160	7200	SATA 3.0 Gbps	16	512	HD163GJ
	250	7200	SATA 3.0 Gbps	16	512	HD253GJ
	320	7200	SATA 3.0 Gbps	16	512	HD323HJ
	500	7200	SATA 3.0 Gbps	16	512	HD502HJ
	1TB	7200	SATA 3.0 Gbps	32	512	HD103SJ
EcoGreen F3	250	5400	SATA 3.0 Gbps	16	512	HD253GI
	500	5400	SATA 3.0 Gbps	16	512	HD503HI
	1 TB	5400	SATA 3.0 Gbps	32	512	HD105SI
EcoGreen F2 (F2EG)	500	5400	SATA 3.0 Gbps	16	512	HD502HI
	1 TB	5400	SATA 3.0 Gbps	32	512	HD103SI
	1.5 TB	5400	SATA 3.0 Gbps	32	512	HD154UI
F1DT	160	7200	SATA 3.0 Gbps	8	512	HD161GJ
	250	7200	SATA 3.0 Gbps	8	512	HD251HJ
	320	7200	SATA 3.0 Gbps	8	512	HD321HJ
	320	7200	SATA 3.0 Gbps	16	512	HD322HJ
	1 TB	7200	SATA 3.0 Gbps	32	512	HD103UJ
F3EG	750	-	SATA 3.0 Gbps	32	512	HD754JI
	1TB	-	SATA 3.0 Gbps	32	512	HD105SI
	1.5 TB	-	SATA 3.0 Gbps	32	512	HD153WI
	2 TB	-	SATA 3.0 Gbps	32	512	HD203WI

2.5" HARD DISK DRIVES

Family	Capacity (GB)	RPM	Interface	Buffer	Sector	Model
M7U	160	5400	USB 2.0	8	512	HM162HX
	250	5400	USB 2.0	8	512	HM252HX
	320	5400	USB 2.0	8	512	HM322IX
	500	5400	USB 2.0	8	512	HM502JX
M7E	160	5400	SATA 3.0 Gbps	8	512	HM161GI
	250	5400	SATA 3.0 Gbps	8	512	HM251HI
	320	5400	SATA 3.0 Gbps	8	512	HM321HI
	500	5400	SATA 3.0 Gbps	8	512	HM501II
	640	5400	SATA 3.0 Gbps	8	512	HM641JI
M7	160	5400	SATA 3.0 Gbps	8	512	HM161HI
	250	5400	SATA 3.0 Gbps	8	512	HM250HI
	320	5400	SATA 3.0 Gbps	8	512	HM320II
	400	5400	SATA 3.0 Gbps	8	512	HM400JI
	500	5400	SATA 3.0 Gbps	8	512	HM500JI
MT2	750	5400		8		HM750LI
	1000	5400		8		HM100UI
MP4	250	7200		16		HM250HJ
	320	7200		16		HM320HJ
	500	7200		16		HM500JJ
	640	7200		16		HM640JJ
M5P	160	5400	PATA	8	512	HM160HC
M5S	160	5400	SATA 1.5 Gbps	8	512	HM160HI
MC30	30	5400	PATA	8	512	HM031HC

SOLID STATE DRIVES (SSD)

Interface	Size	Connector	Controller	Component	Density	Part Number
SATA II - MLC	2.5" 7mmT	Thin SATA	PM810	16Gb	64GB	MZ7PA064HMCD-01000
					128GB	MZ7PA128HMCD-01000
					256GB	MZ7PA256HMDR-01000
	2.5" 9.5mmT	Thin SATA	PM810	16Gb	64GB	MZ5PA064HMCD-01000
					128GB	MZ5PA128HMCD-01000
					256GB	MZ5PA256HMDR-01000
	mSATA	PCIe	PM810	16Gb	32GB	MZMPA032HMCD-00000
					64GB	MZMPA064HMDR-00000
					128GB	MZMPA128HMFU-00000

Please contact your local Samsung sales representative for latest product offerings

Note: All parts are lead free

BLU-RAY H/H

Interface	Speed	Type	Loading	Lightscribe	Model
SATA	BD Combo 12X	H/H	Tray	X	TS-HB43A / SH-B123A
				O	TS-HB43L / SH-B123L

BLU-RAY SLIM

Interface	Speed	Type	Loading	Lightscribe	Model
SATA	BD Combo 4X	Slim	Tray	X	SN-B043D
				O	SN-B043P

BLU-RAY COMBO SLIM EXTERNAL

Interface	Speed	Type	Loading	Lightscribe	Model
USB 2.0	BD Combo 6X	Slim	Tray	X	SE-406AB

DVD-W H/H

Interface	Speed	Type	Loading	Lightscribe	Model
PATA	DVD Write 22X	H/H	Tray	X	TS-H662A / SH-S222A
SATA	DVD Write 22X	H/H	Tray	X	TS-H663C / SH-S223C
PATA	DVD Write 22X	H/H	Tray	O	TS-H662L / SH-S222L
SATA	DVD Write 22X	H/H	Tray	O	TS-H663L / SH-S223L
SATA	DVD Write 22X	H/H	Tray	X	SH-222AB

DVD-W Slim

Interface	Speed	Type	Loading	Lightscribe	Model
SATA	DVD Write 8X	Slim	Tray	X	TS-L633F / SN-S083F
					TS-L633J
				O	TS-L633R / SN-S083R
			Slot	O	TS-T633P

DVD-W SLIM EXTERNAL

Interface	Speed	Type	Loading	Lightscribe	Model
USB 2.0	DVD Write 8X	Ultra Slim	Tray	X	SE-S084D
		Slim	Tray	X	SE-S084F

DVD-ROM

Interface	Speed	Type	Loading	Lightscribe	Model
SATA	DVD 16X	H/H	Tray	X	SH-D163C
	DVD 8X	Slim			TS-L333H

DVD-W LOADER

Interface	Speed	Type	Loading	Lightscribe	Model
PATA	DVD 8X	H/H	Tray	X	TS-P632F

DID Product Classification

E-DID: Exclusive DID	SUPER NARROW	PANORAMIC DISPLAY	OUTDOOR: HIGH LUMINANCE » 1500 – 2000nit
P-DID: Performance DID	NARROW » Narrow » Black Bezel	WALL-MOUNTED » Thin/Light » (Edge LED)	LARGE FORMAT DISPLAY » 70" / 82"
B-DID: Basic DID	LANDSCAPE / PORTRAIT CONVERTIBLE		

Why DID Instead of TV?

	Commercial (DID)	Consumer (TV)
Warranty	18 months to 2 years	90 days to 1 year
Reliability	Designed for continuous use in different environments Turned on for 20 hours + Variety of temperatures & location	Designed for in-home use in controlled environment Turned on for 6-8 hours In-home living room
Picture Quality	Designed for PC signals LCD backlight covers a wider color spectrum necessary for PC source integration giving better picture quality	Designed for vable TV signals Have cooler color temperature settings producing blue/white image displaying less color accuracy
Location	Can be oriented in either portrait or landscape mode	Can only be oriented in portrait mode

Product Segmentation

HEAVY USE

LIGHT USE

E-DID: Exclusive
- » All Features of P-DID
- » Specialty: SNB, Panoramic, High Brightness
- » Robust Design

P-DID: Performance
- » All Features of B-DID
- » Narrow & Black Bezel
- » Typ. Brightness: 700 (cd/m2)

B-DID: Basic
- » Landscape/Portrait
- » High reliability
- » Pol. (Haze 44%)
- » Long Lifetime: More Than 2 Years

Professional	Outdoor Events	Billboard
• Control Room • Simulation	• Scoreboard • Sports Broadcasting	• Billboard

Entertainment	Transportation	Communication	Rental
• Casino • Theatre • Poster • Menu	• Airport • Train/Bus Station	• Conference Room	• Rental • Staging

Commercial	Education
• Kiosk • Mart Board	• E-Board

Product Segmentation

Type	Abbr	Warranty	Bezel	Suggested Run Time	Brightness	Usage	Applications	Pricing
E-DID	Exclusive	2 years	Narrow and Super Narrow	20 hours +	450 to 2000 nits	Heavy	Outdoor, Video Walls, Panormaic	High-price Range
P-DID	Performance	2 years	Narrow	20 hours +	600/700 nits	Medium	Semi-Outdoor	Mid-price Range
B-DID	Basic	18 months	Normal	14-16 hours	450 nits	Light	Indoor, e-Board	Low-price Range; Comperable to Consumer Panels

SAMSUNG DIGITAL INFORMATION DISPLAY (DID) PANEL LINEUP

Type	Current Model	New Model	Size	Model resolution	Bezel	Backlight	Brightness (typical)	Contrast Ratio	Response Time	Frequency	MP*	Comment
E-DID	LTI430LA01-0	-	43"	1920X480	Narrow	CCFL	700 nits	3,000:1	8ms	60Hz	Now	Panoramic
		LTI430LA02	43"	1920X480	Narrow	E-LED	450 nits	3,000:1	6ms	60Hz	2011. Q2	Panoramic
	LTI460AA03	-	46"	HD	Narrow + Black	CCFL	1500 nits	3,000:1	8ms	60Hz	Now	High bright
	LTI460AA04	-	46"	HD	Super narrow	CCFL	700 nits	3,000:1	8ms	60Hz	Now	7.3mm Active to Active
	LTI460AA05	-	46"	HD	Super narrow	CCFL	450 nits	4,000:1	8ms	60Hz	Now	7.3mm Active to Active
		LTI550HN01	55"	FHD	Super narrow	D-LED	700 nits	3,000:1	TBD	60Hz	2011. Q2	5.7mm Active to Active
	LTI700HD02		70"	FHD	Normal	D-LED	2000 nits	2,500:1	8ms	60Hz	Now	High Bright
P-DID	LTI400HA02		40"	FHD	Narrow	CCFL	700 nits	3,000:1	8ms	60Hz	Now	
	LTI400HA03		40"	FHD	Narrow + Black	CCFL	700 nits	3,000:1	8ms	60Hz	Now	
	LTI460HA02		46"	FHD	Narrow	CCFL	700 nits	3,500:1	8ms	60Hz	Now	
	LTI460HA03		46"	FHD	Narrow + Black	CCFL	700 nits	3,500:1	8ms	60Hz	Now	
		LTI460HJ01	46"	FHD	Narrow	E-LED	600 nits	3,000:1	10ms	120Hz	2011. Q2	
	LTI550HF02	-	55"	FHD	Narrow	CCFL	700 nits	4,000:1	8ms	60Hz	Now	
		LTI550HJ02	55"	FHD	Narrow	E-LED	600 nits	4,000:1	10ms	120Hz	2011. Q2	
	LTI700HD01	-	70"	FHD	Normal	CCFL	600 nits	2,000:1	8ms	60Hz	Now	
	LTI820HT-L01	-	82"	FHD	Normal	CCFL	600 nits	2,000:1	8ms	60Hz	Now	
B-DID	LTI260AP01		26"	HD	Normal	CCFL	450 nits	4,000:1	8ms	60Hz	Now	
	LTI320AA02	LTI320AP02	32"	HD	Normal	CCFL	450 nits	3,500:1	8ms	60Hz	2011. Q2	
	LTI400HA01		40"	FHD	Normal	CCFL	450 nits	4,000:1	8ms	60Hz	Now	
	LTI460HM01		46"	FHD	Normal	CCFL	450 nits	3,000:1	8ms	60Hz	Now	
	LTI700HD03		70"	FHD	Normal	CCFL	450 nits	2,000:1	8ms	60Hz	Now	E-Board; Landscape mode only
	LTI820HD03		82"	FHD	Normal	CCFL	450 nits	2,000:1	8ms	60Hz	Now	E-Board; Landscape mode only

NOTES: HD = 1366 x 768
FHD = 1920 x 1080
*MP Date subject to change

Please contact your local Samsung Rep for more information.

TABLETS

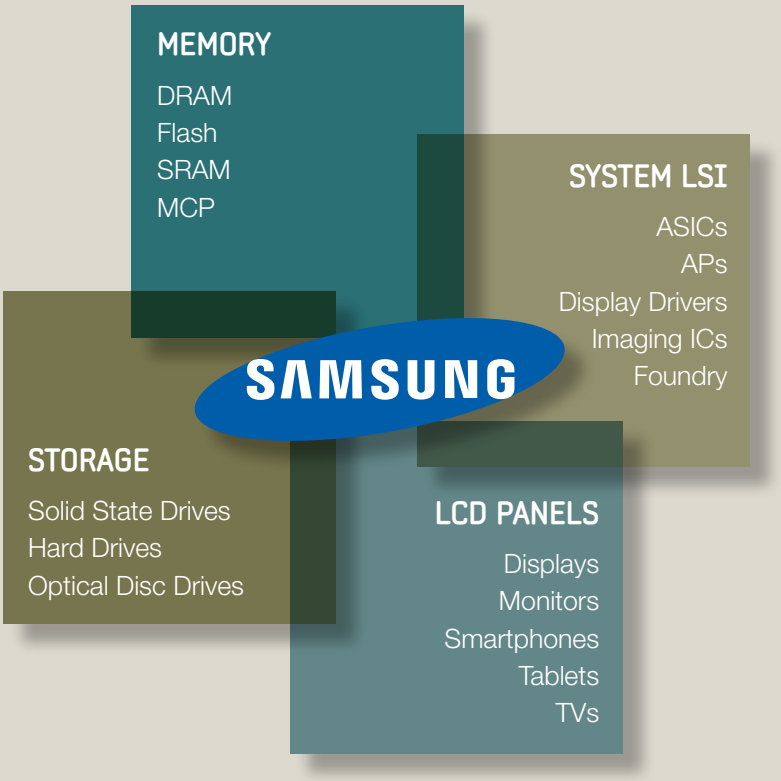
Size	PN	Mode	Resolution	H(RGB)	V	Aspect Ratio	PPI	Brightness (nits)	MP
7	LTN070NL01	PLS	WSVGA	1024	600	17:10	170	400	Now
		PLS	WXGA	1280	800	16:10	216	400	June, 2011
9.7	LTN097LX01-H01	PLS	XGA	1024	768	4:3	132	300	April, 2011
10.1	LTN101AL02-P01	PLS	WXGA	1280	800	16:10	149	400	April, 2011
		PLS	WXGA	1280	800	16:10	149	400	June, 2011

NOTEBOOKS / PERSONAL COMPUTERS

Size	PN	Mode	Resolution	H(RGB)	V	Aspect Ratio	PPI	Brightness (nits)	MP
10.1	LTN101NT06	TN	WSVGA	1024	600	17:10	118	200	Now
	LTN101AT03	TN	HD	1366	768	16:9	155	200	TBD
11.6	LTN116AT	TN	HD	1366	768	16:9	135	200	TBD
12.5	LTN125AT	TN	HD	1366	768	16:9	125	200	TBD
13.3	LTN133AT	TN	HD	1366	768	16:9	118	200	TBD
14	LTN140AT	TN	HD	1366	768	16:9	112	200	Now
	LTN140KT	TN	HD+	1600	900	16:9	131	250	TBD
15.6	LTN156AT	TN	HD	1366	768	16:9	100	200	Now
	LTN156KT	TN	HD+	1600	900	16:9	118	250	TBD
	LTN156HT	TN	FHD	1920	1080	16:9	141	300	TBD
17.3	LTN173KT01	TN	HD+	1600	900	16:9	106	200	Now

MONITORS

Size	PN	Mode	Resolution	H(RGB)	V	Aspect Ratio	PPI	Brightness (nits)	MP
17	LTM170ET01	TN	SXGA	1280	1024	5:4	96	250	Now
18.5	LTM185AT01	TN	HD	1366	768	16:9	85	250	Now
	LTM185AT04	TN	HD	1366	768	16:9	85	250	Now
20	LTM200KT03	TN	HD+	1600	900	16:9	92	250	Now
	LTM200KT07	TN	HD+	1600	900	16:9	92	250	Now
22	LTM220MT05	TN	WSXGA+	1680	1050	16:10	90	250	Now
23	LTM230HP01	PVA	FHD	1920	1080	16:9	96	300	Now
	LTM230HT01	TN	FHD	1920	1080	16:9	96	300	Now
	LTM230HT05	TN	FHD	1920	1080	16:9	96	300	Now
24	LTM240CT04	TN	WUXGA	1920	1200	16:10	94	300	Now
	LTM240CL01	PLS	WUXGA	1920	1200	16:9	94	300	May, 2011
27	LTM270HT03	TN	FHD	1920	1080	16:9	82	300	Now
	LTM270DL02	PLS	QHD	2560	1440	16:9	109	300	May, 2011



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Samsung Semiconductor, Inc.
3655 North First Street
San Jose, CA 95134-1713

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