

# PRODUCT SELECTION GUIDE



GD32 MCU  
SPI NOR FLASH  
SPI NAND FLASH

# About Us

GigaDevice, established in 2005, is a leading fabless company engaged in advanced memory technology and IC solutions. The company has successfully completed the IPO at Shanghai Stock Exchange in 2016. GigaDevice provides a wide range of high performance Flash memory and 32-bit general-purpose MCU products. GigaDevice is among the companies that pioneered SPI NOR Flash memory and is currently ranked number three in the world in this market segment with more than 1 billion units shipped every year.

Since 2007, GigaDevice is ISO9001 and ISO14001 certified by SGS. GigaDevice has filed 600+ patent applications with 200+ patents granted. More than 55% employees are in research and development, which continues to differentiate our products from competitions in the market. The GigaDevice management team embodies leading semiconductor industry experience from renowned memory companies in California's Silicon Valley, Korea, and Taiwan.

GigaDevice currently produces a wide range of SPI NOR Flash, SPI NAND Flash, ONFi NAND Flash and MCU for use in embedded, consumer, and mobile communications applications. GigaDevice operates a manufacturing model based on strong relationships with: foundry, assembly, and test subcontractor partners. GigaDevice believes this well-defined fabless manufacturing model provides us with a competitive advantage over the conventional fabrication-based Integrated Device Manufacturers because the capital equipment expenditure to maintain advanced memory process technologies is beyond the market return of many IC memory market segments. The consistent investment in advanced equipment by our foundry partners and their rapid growth in 12" wafer capacity are key factors in our success over our competitors.

Welcome to  
GigaDevice



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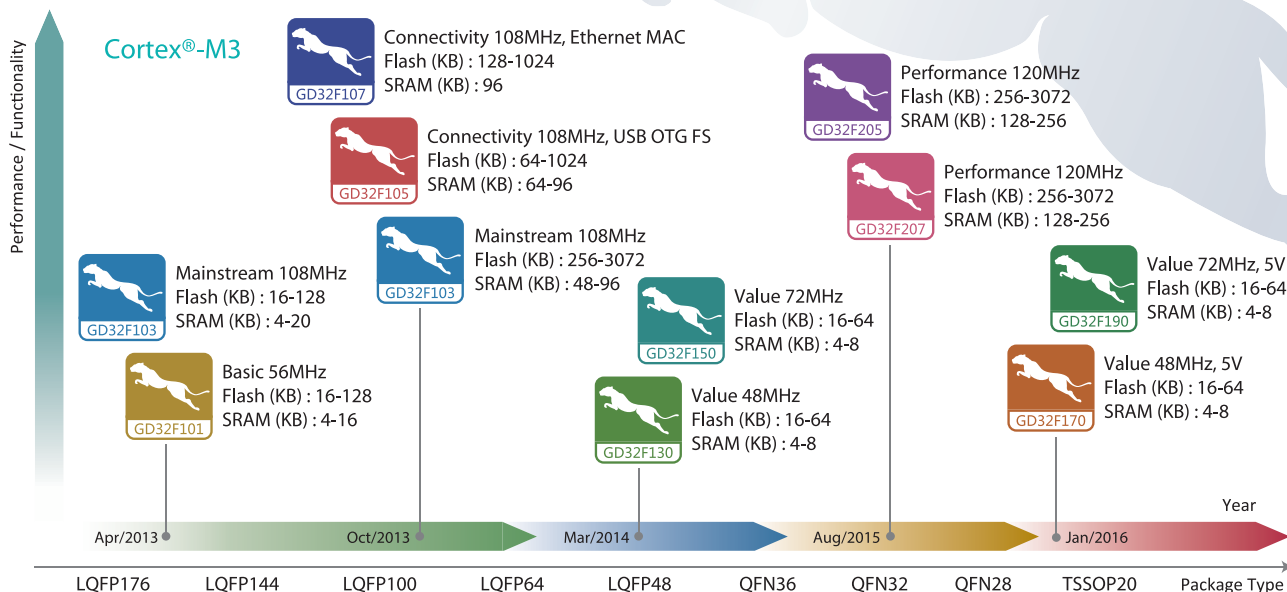
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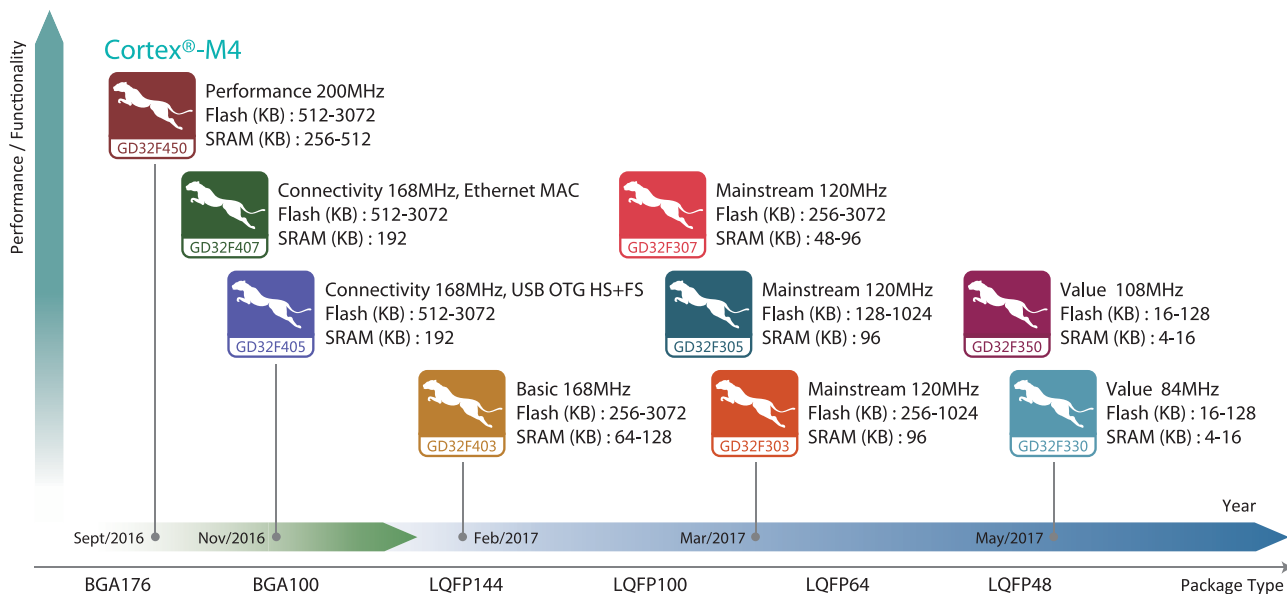
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# GD32 MCU

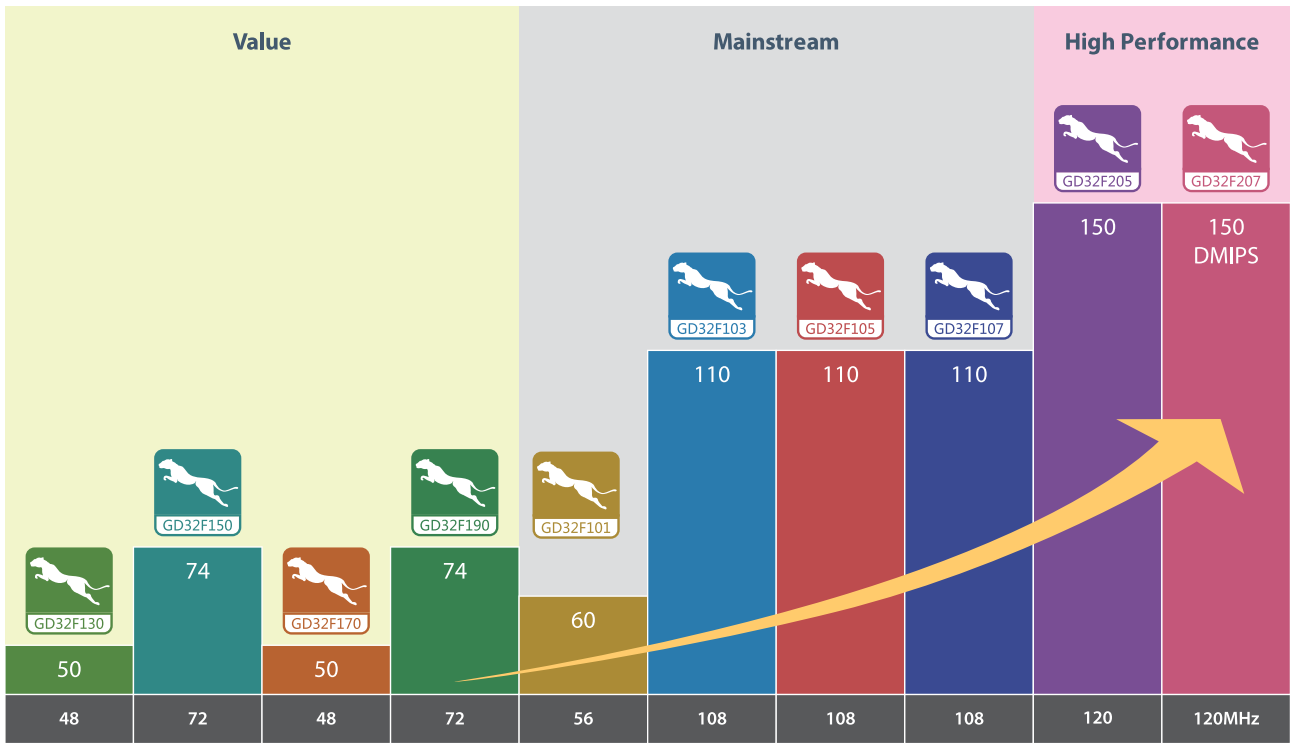
## GD32 Cortex®-M3 MCU Portfolios



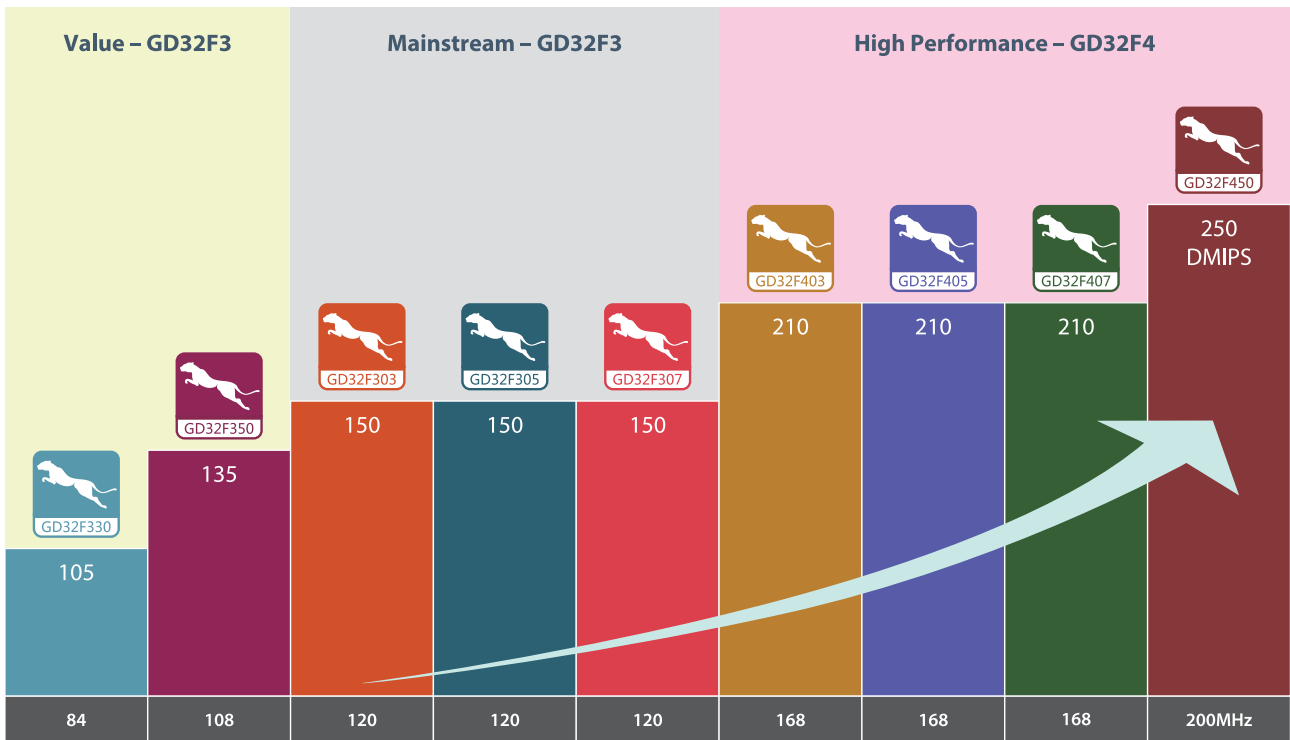
## GD32 Cortex®-M4 MCU Portfolios



## GD32 Cortex<sup>®</sup> -M3 Portfolios ~200P/N



## GD32 Cortex<sup>®</sup> -M4 Portfolios ~100P/N





## MCU Package Options

LQFP176 (24*24mm)	LQFP144 (20*20mm)	LQFP100 (14*14mm)	LQFP64 (10*10mm)	LQFP48 (7*7mm)	LQFP32 (7*7mm)
					
BGA176 (10*10mm)	BGA100 (7*7mm)	QFN36 (6*6mm)	QFN32 (5*5mm)	QFN28 (4*4mm)	TSSOP20 (6.5*4.4mm)
					



## GD32 Development Eco-system

Build GD32 development environment with H/W and S/W compatible



Product Line

Multiplex products  
Best peripherals

Series compatible  
Easy to use

Eco-system

Service

Sufficient Capacity  
Fast lead time

High Performance  
Cost-effective

Quality



# GD32E1 series of 32-bit ARM® Cortex®-M4F MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer				Connectivity						Analog Interface		Package			
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	Bsc TM (16bit)	SysTick (24bit)	Wdg RTC	USART +UART	i²C	SPI	CAN 2.0B	USB 2.0 FS	i²S	SDIO		Ether-net	EXMC	12bit ADC Units (CHs)
GD32E103	GD32E103T8U6	120	64K	20K	up to 26	4	1	2	1	2	1	2+0	1	1	2 x FD	OTG			2(10)	2	QFN36
	GD32E103TBU6	120	128K	32K	up to 26	4	1	2	1	2	1	2+0	1	1	2 x FD	OTG			2(10)	2	QFN36
	GD32E103CBT6	120	64K	20K	up to 37	10	1	2	1	2	1	3+0	2	3	2 x FD	OTG	2		2(10)	2	LQFP48
	GD32E103CBT6	120	128K	32K	up to 37	10	1	2	1	2	1	3+0	2	3	2 x FD	OTG	2		2(10)	2	LQFP48
	GD32E103RBT6	120	64K	20K	up to 51	10	2	2	1	2	1	3+2	2	3	2 x FD	OTG	2		2(16)	2	LQFP64
	GD32E103RBT6	120	128K	32K	up to 51	10	2	2	1	2	1	3+2	2	3	2 x FD	OTG	2		2(16)	2	LQFP64
	GD32E103V8T6	120	64K	20K	up to 80	10	2	2	1	2	1	3+2	2	3	2 x FD	OTG	2		2(16)	2	LQFP100
	GD32E103V8T6	120	128K	32K	up to 80	10	2	2	1	2	1	3+2	2	3	2 x FD	OTG	2		2(16)	2	LQFP100

# GD32F4 series of 32-bit ARM® Cortex®-M4F MCUs Selection Guide

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer				Connectivity							Analog Interface		Package									
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	GPTM (32bit)	Bsc TM (16bit)	Wdg RTC	USART +UART	i²C	SPI	CAN 2.0B	USB	i²S	SDIO	LCD-Cam Tera		ETH MAC	IPA	EXMC/SDRAM	12bit ADC Units (CHs)	12bit DAC Units				
GD32F450	GD32F450VE16	200	512K	256K	up to 82	8	2	2	2	2	1	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100
	GD32F450VT6	200	1024K	256K	up to 82	8	2	2	2	2	1	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100
	GD32F450VIT6	200	2048K	512K	up to 82	8	2	2	2	2	1	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100
	GD32F450VKT6	200	3072K	256K	up to 82	8	2	2	2	2	2	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100
	GD32F450ZET6	200	512K	256K	up to 114	8	2	2	2	2	2	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144
	GD32F450ZGT6	200	1024K	256K	up to 114	8	2	2	2	2	2	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144
	GD32F450ZHT6	200	2048K	512K	up to 114	8	2	2	2	2	2	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144
	GD32F450ZKT6	200	3072K	256K	up to 140	8	2	2	2	2	2	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144
	GD32F450IGH6	200	1024K	256K	up to 140	8	2	2	2	2	2	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1	1	1/1	3(24)	2	BGA176
	GD32F450IH6	200	2048K	512K	up to 140	8	2	2	2	2	2	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1	1	1/1	3(24)	2	BGA176
	GD32F450IKH6	200	3072K	256K	up to 140	8	2	2	2	2	2	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1	1	1/1	3(24)	2	BGA176
	GD32F405RE16	168	512K	192K	up to 51	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(16)	2	LQFP64
	GD32F405RG16	168	1024K	192K	up to 51	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(16)	2	LQFP64
GD32F405RK16	168	3072K	192K	up to 51	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(16)	2	LQFP64	
GD32F405VG16	168	1024K	192K	up to 82	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(16)	2	LQFP100	
GD32F405VK16	168	3072K	192K	up to 82	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(16)	2	LQFP100	
GD32F405VGH6	168	1024K	192K	up to 82	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(16)	2	BGA100	
GD32F405VKH6	168	3072K	192K	up to 82	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(16)	2	BGA100	
GD32F405ZG16	168	1024K	192K	up to 114	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(24)	2	LQFP144	
GD32F405ZKT6	168	3072K	192K	up to 114	8	2	2	2	2	2	4+2	3	3	2	FS+HS	2	1								3(24)	2	LQFP144	



# GD32F4 series of 32-bit ARM® Cortex®-M4F MCUs Selection Guide

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity										Analog Interface		Package					
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	GPTM (32bit)	Bsc TM (16bit)	WDG	RTC	USART +UART	i²C	SPI	CAN 2.0B	USB OTG	i²s	SDIO	LCD-TFT	Cam era	ETH MAC	IPA	EXMC/SDRAM		12bit ADC Units (CHs)	12bit DAC Units			
GD32F407	GD32F407RET6	168	512K	192K	up to 51	8	2	2	2	2	2	2	2	1	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	LQFP64
	GD32F407RGTH6	168	1024K	192K	up to 51	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	LQFP64
	GD32F407RKT6	168	3072K	192K	up to 51	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	LQFP64
	GD32F407VET6	168	512K	192K	up to 82	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	LQFP100
	GD32F407VGT6	168	1024K	192K	up to 82	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	LQFP100
	GD32F407VKT6	168	3072K	192K	up to 82	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	LQFP100
	GD32F407VEH6	168	512K	192K	up to 82	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	BGA100
	GD32F407VGH6	168	1024K	192K	up to 82	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	BGA100
	GD32F407VKH6	168	3072K	192K	up to 82	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(16)	2	2	BGA100
	GD32F407ZET6	168	512K	192K	up to 114	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(24)	2	2	LQFP144
	GD32F407ZGT6	168	1024K	192K	up to 114	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(24)	2	2	LQFP144
	GD32F407ZKT6	168	3072K	192K	up to 114	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(24)	2	2	LQFP144
	GD32F407IEH6	168	512K	192K	up to 140	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(24)	2	2	BGA176
	GD32F407IGH6	168	1024K	192K	up to 140	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(24)	2	2	BGA176
	GD32F407IKH6	168	3072K	192K	up to 140	8	2	2	2	2	2	2	2	2	4+2	3	3	2	2	1	1	1	1	1	1	3(24)	2	2	BGA176
	GD32F403RCT6	168	256K	64K	up to 51	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	0/0	3(16)	2	2
GD32F403RET6	168	512K	96K	up to 51	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	0/0	3(16)	2	2	LQFP64
GD32F403RGT6	168	1024K	128K	up to 51	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	0/0	3(16)	2	2	LQFP64
GD32F403RIT6	168	2048K	128K	up to 51	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	0/0	3(16)	2	2	LQFP64
GD32F403RKT6	168	3072K	128K	up to 51	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	0/0	3(16)	2	2	LQFP64
GD32F403VCT6	168	256K	64K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	LQFP100
GD32F403VET6	168	512K	96K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	LQFP100
GD32F403VGT6	168	1024K	128K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	LQFP100
GD32F403VIT6	168	2048K	128K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	LQFP100
GD32F403VKT6	168	3072K	128K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	LQFP100
GD32F403VCH6	168	256K	64K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	BGA100
GD32F403VEH6	168	512K	96K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	BGA100
GD32F403VGH6	168	1024K	128K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	BGA100
GD32F403VIH6	168	2048K	128K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	BGA100
GD32F403VKH6	168	3072K	128K	up to 80	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(16)	2	2	BGA100
GD32F403ZCT6	168	256K	64K	up to 112	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(21)	2	2	LQFP144
GD32F403ZET6	168	512K	96K	up to 112	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(21)	2	2	LQFP144
GD32F403ZGT6	168	1024K	128K	up to 112	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(21)	2	2	LQFP144
GD32F403ZIT6	168	2048K	128K	up to 112	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(21)	2	2	LQFP144
GD32F403ZKT6	168	3072K	128K	up to 112	8	2	2	2	2	2	2	2	2	3+2	2	2	2	2	1	1	1	1	1	1	1/0	3(21)	2	2	LQFP144



# GD32F3 series of 32-bit ARM® Cortex®-M4 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer				Connectivity							Analog Interface		Package			
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART +UART	I²C	SPI	CAN 2.0B	USB 2.0 FS	I²S	SDIO		Ether-net	EXMC	12bit ADC Units (CHs)
GD32F303	GD32F303CCT6	120	256K	48K	up to 37	4	1	2	1	2	1	2	1	3	2	3	1	1	2	3(10)	2	LQFP48
	GD32F303CET6	120	512K	64K	up to 37	4	1	2	1	2	1	2	1	3	2	3	1	1	2	3(10)	2	LQFP48
	GD32F303CGT6	120	1024K	96K	up to 37	10	1	2	1	2	1	2	1	3	2	3	1	1	2	3(10)	2	LQFP48
	GD32F303RCT6	120	256K	48K	up to 51	4	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP64
	GD32F303RET6	120	512K	64K	up to 51	4	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP64
	GD32F303RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP64
	GD32F303RTT6	120	2048K	96K	up to 51	10	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP64
	GD32F303RKT6	120	3072K	96K	up to 51	10	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP64
	GD32F303VCT6	120	256K	48K	up to 80	4	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP100
	GD32F303VET6	120	512K	64K	up to 80	4	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP100
	GD32F303VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP100
	GD32F303VIT6	120	2048K	96K	up to 80	10	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP100
	GD32F303VKT6	120	3072K	96K	up to 80	10	2	2	1	2	1	2	1	5	2	3	1	1	2	3(16)	2	LQFP100
	GD32F303ZCT6	120	256K	48K	up to 112	4	2	2	1	2	1	2	1	5	2	3	1	1	2	3(21)	2	LQFP144
	GD32F303ZET6	120	512K	64K	up to 112	4	2	2	1	2	1	2	1	5	2	3	1	1	2	3(21)	2	LQFP144
GD32F303ZIT6	120	1024K	96K	up to 112	10	2	2	1	2	1	2	1	5	2	3	1	1	2	3(21)	2	LQFP144	
GD32F303ZKT6	120	2048K	96K	up to 112	10	2	2	1	2	1	2	1	5	2	3	1	1	2	3(21)	2	LQFP144	
GD32F305RBT6	120	128K	64K	up to 51	4	1	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP64	
GD32F305RCT6	120	256K	96K	up to 51	4	1	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP64	
GD32F305RET6	120	512K	96K	up to 51	4	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP64	
GD32F305RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP64	
GD32F305VCT6	120	256K	96K	up to 80	4	1	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP100	
GD32F305VET6	120	512K	96K	up to 80	4	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP100	
GD32F305VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP100	
GD32F305ZCT6	120	256K	96K	up to 112	4	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP144	
GD32F305ZET6	120	512K	96K	up to 112	4	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP144	
GD32F305ZIT6	120	1024K	96K	up to 112	10	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP144	
GD32F307RBT6	120	256K	96K	up to 51	4	1	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP64	
GD32F307RET6	120	512K	96K	up to 51	4	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP64	
GD32F307RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP64	
GD32F307VCT6	120	256K	96K	up to 80	4	1	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP100	
GD32F307VET6	120	512K	96K	up to 80	4	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP100	
GD32F307VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP100	
GD32F307ZCT6	120	256K	96K	up to 112	4	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP144	
GD32F307ZET6	120	512K	96K	up to 112	4	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP144	
GD32F307ZIT6	120	1024K	96K	up to 112	10	2	2	1	2	1	2	1	5	2	3	2	2	2	2(16)	2	LQFP144	



# GD32F2 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer				Connectivity							Analog Interface		Package								
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	Bsc TM (16bit)	SysTick (24bit)	Wdg RTC	USART +UART	I <sup>2</sup> C	SPI	CAN 2.0B	USB 2.0 FS	I <sup>2</sup> S	SDIO	LCD- Camera TFT		ETH MAC	Crypto/ Hash	EXMC/ SDRAM	12bit ADC Units (CHs)	12bit DAC Units			
GD32F205	GD32F205RCT6	120	256K	128K	up to 51	10	2	2	1	2	1	2	1	4+2	3	3	2	2	OTG	2	1			3(16)	2	LQFP64	
	GD32F205RET6	120	512K	128K	up to 51	10	2	2	1	2	1	2	1	4+2	3	3	2	2	OTG	2	1			3(16)	2	LQFP64	
	GD32F205RGT6	120	1024K	256K	up to 51	10	2	2	1	2	1	2	1	4+2	3	3	2	2	OTG	2	1			3(16)	2	LQFP64	
	GD32F205RKT6	120	3072K	256K	up to 51	10	2	2	1	2	1	2	1	4+2	3	3	2	2	OTG	2	1			3(16)	2	LQFP64	
	GD32F205VCT6	120	256K	128K	up to 82	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1		1/0	3(16)	2	LQFP100
	GD32F205VET6	120	512K	128K	up to 82	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1		1/0	3(16)	2	LQFP100
	GD32F205VGT6	120	1024K	256K	up to 82	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1		1/0	3(16)	2	LQFP100
	GD32F205VKT6	120	3072K	256K	up to 82	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1		1/0	3(16)	2	LQFP100
	GD32F205ZCT6	120	256K	128K	up to 114	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1		1/1	3(24)	2	LQFP144
	GD32F205ZET6	120	512K	128K	up to 114	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1		1/1	3(24)	2	LQFP144
	GD32F205ZGT6	120	1024K	256K	up to 114	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1		1/1	3(24)	2	LQFP144
	GD32F205ZKT6	120	3072K	256K	up to 114	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1		1/1	3(24)	2	LQFP144
	GD32F207RCT6	120	256K	128K	up to 51	10	2	2	1	2	1	2	1	4+2	3	3	2	2	OTG	2	1	1	1	1	3(16)	2	LQFP64
	GD32F207RET6	120	512K	128K	up to 51	10	2	2	1	2	1	2	1	4+2	3	3	2	2	OTG	2	1	1	1	1	3(16)	2	LQFP64
	GD32F207RGT6	120	1024K	256K	up to 51	10	2	2	1	2	1	2	1	4+2	3	3	2	2	OTG	2	1	1	1	1	3(16)	2	LQFP64
	GD32F207RKT6	120	3072K	256K	up to 51	10	2	2	1	2	1	2	1	4+2	3	3	2	2	OTG	2	1	1	1	1	3(16)	2	LQFP64
GD32F207VCT6	120	256K	128K	up to 82	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(16)	2	LQFP100	
GD32F207VET6	120	512K	128K	up to 82	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(16)	2	LQFP100	
GD32F207VGT6	120	1024K	256K	up to 82	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(16)	2	LQFP100	
GD32F207VKT6	120	3072K	256K	up to 82	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(16)	2	LQFP100	
GD32F207ZCT6	120	256K	128K	up to 114	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(24)	2	LQFP144	
GD32F207ZET6	120	512K	128K	up to 114	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(24)	2	LQFP144	
GD32F207ZGT6	120	1024K	256K	up to 114	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(24)	2	LQFP144	
GD32F207ZKT6	120	3072K	256K	up to 114	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(24)	2	LQFP144	
GD32F207IET6	120	512K	128K	up to 140	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(24)	2	LQFP176	
GD32F207IGT6	120	1024K	256K	up to 140	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(24)	2	LQFP176	
GD32F207IKT6	120	3072K	256K	up to 140	10	2	2	1	2	1	2	1	4+4	3	3	2	2	OTG	2	1	1	1	1	3(24)	2	LQFP176	



# GD32F1 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity						Analog Interface		Package		
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART (UART)	ƳC	SPI	CAN 2.0B	USB 2.0 FS	ƳS	SDIO	Ether-net		EXMC	12bit ADC Units (CHs)
GD32F103	GD32F103T4U6	108	16K	6K	up to 26	2	1	1	1	2	1	2	1	1	1	1	1	2	(10)	2	QFN36	
	GD32F103T6U6	108	32K	10K	up to 26	2	1	1	1	2	1	2	1	1	1	1	1	2	(10)	2	QFN36	
	GD32F103T8U6	108	64K	20K	up to 26	3	1	1	1	2	1	2	1	1	1	1	1	2	(10)	2	QFN36	
	GD32F103TBU6	108	128K	20K	up to 26	3	1	1	1	2	1	2	1	1	1	1	1	2	(10)	2	QFN36	
	GD32F103C4T6	108	16K	6K	up to 37	2	1	1	1	2	1	2	1	1	1	1	1	2	(10)	2	LQFP48	
	GD32F103C6T6	108	32K	10K	up to 37	2	1	1	1	2	1	2	1	1	1	1	1	2	(10)	2	LQFP48	
	GD32F103C8T6	108	64K	20K	up to 37	3	1	1	1	2	1	3	2	2	1	1	1	2	(10)	2	LQFP48	
	GD32F103CBT6	108	128K	20K	up to 37	3	1	1	1	2	1	3	2	2	1	1	1	2	(10)	2	LQFP48	
	GD32F103R4T6	108	16K	6K	up to 51	2	1	1	1	2	1	2	1	1	1	1	1	2	(16)	2	LQFP64	
	GD32F103R6T6	108	32K	10K	up to 51	2	1	1	1	2	1	2	1	1	1	1	1	2	(16)	2	LQFP64	
	GD32F103R8T6	108	64K	20K	up to 51	3	1	1	1	2	1	3	2	2	1	1	1	2	(16)	2	LQFP64	
	GD32F103RBT6	108	128K	20K	up to 51	3	1	1	1	2	1	3	2	2	1	1	1	2	(16)	2	LQFP64	
	GD32F103RCT6	108	256K	48K	up to 51	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP64
	GD32F103RDT6	108	384K	64K	up to 51	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP64
	GD32F103RET6	108	512K	64K	up to 51	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP64
	GD32F103RFT6	108	768K	96K	up to 51	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP64
	GD32F103RGT6	108	1024K	96K	up to 51	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP64
	GD32F103RIT6	108	2048K	96K	up to 51	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP64
	GD32F103RKT6	108	3072K	96K	up to 51	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP64
	GD32F103V8T6	108	64K	20K	up to 80	3	1	1	1	2	1	3	2	2	1	1	1	1	2	(16)	2	LQFP100
	GD32F103VB8T6	108	128K	20K	up to 80	3	1	1	1	2	1	3	2	2	1	1	1	1	2	(16)	2	LQFP100
	GD32F103VCT6	108	256K	48K	up to 80	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP100
	GD32F103VDT6	108	384K	64K	up to 80	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP100
	GD32F103VET6	108	512K	64K	up to 80	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP100
	GD32F103VFT6	108	768K	96K	up to 80	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP100
	GD32F103VGT6	108	1024K	96K	up to 80	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP100
	GD32F103VIT6	108	2048K	96K	up to 80	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP100
	GD32F103VKT6	108	3072K	96K	up to 80	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(16)	2	LQFP100
	GD32F103ZCT6	108	256K	48K	up to 112	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(21)	2	LQFP144
	GD32F103ZDT6	108	384K	64K	up to 112	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(21)	2	LQFP144
	GD32F103ZET6	108	512K	64K	up to 112	4	2	2	2	2	1	5	2	3	1	1	2	1	3	(21)	2	LQFP144
	GD32F103ZFT6	108	768K	96K	up to 112	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(21)	2	LQFP144
GD32F103ZGT6	108	1024K	96K	up to 112	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(21)	2	LQFP144	
GD32F103ZIT6	108	2048K	96K	up to 112	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(21)	2	LQFP144	
GD32F103ZKT6	108	3072K	96K	up to 112	10	2	2	2	2	1	5	2	3	1	1	2	1	3	(21)	2	LQFP144	



# GD32F1 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer					Connectivity					Analog Interface		Package			
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART (UART)	ƳC	SPI	CAN 2.0B	USB 2.0 FS	ƳS SDIO		Ether-net	EXMC	12bit ADC Units (CHs)
GD32F105	GD32F105R8T6	108	64K	64K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
	GD32F105R8T6	108	128K	64K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
	GD32F105R8T6	108	256K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
	GD32F105R8T6	108	384K	96K	up to 51	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
	GD32F105RET6	108	512K	96K	up to 51	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
	GD32F105RET6	108	768K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
	GD32F105RGT6	108	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
	GD32F105V8T6	108	64K	64K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
	GD32F105V8T6	108	128K	64K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
	GD32F105VCT6	108	256K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
	GD32F105VDT6	108	384K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
	GD32F105VET6	108	512K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
	GD32F105VFT6	108	768K	96K	up to 80	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
	GD32F105VGT6	108	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
	GD32F105ZCT6	108	256K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
	GD32F105ZDT6	108	384K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
	GD32F105ZET6	108	512K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
	GD32F105ZFT6	108	768K	96K	up to 112	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
	GD32F105ZGT6	108	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
	GD32F107	GD32F107R8T6	108	128K	96K	up to 51	4	1	2	1	2	1	5	1	3	2	OTG	2	2	(16)	2
GD32F107R8T6		108	256K	96K	up to 51	4	1	2	1	2	1	5	1	3	2	OTG	2	2	(16)	2	LQFP64
GD32F107RDT6		108	384K	96K	up to 51	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
GD32F107RET6		108	512K	96K	up to 51	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
GD32F107RGT6		108	768K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP64
GD32F107V8T6		108	128K	96K	up to 80	4	1	2	1	2	1	5	1	3	2	OTG	2	2	(16)	2	LQFP100
GD32F107V8T6		108	256K	96K	up to 80	4	1	2	1	2	1	5	1	3	2	OTG	2	2	(16)	2	LQFP100
GD32F107VCT6		108	384K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
GD32F107VDT6		108	512K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
GD32F107VET6		108	768K	96K	up to 80	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
GD32F107VFT6		108	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP100
GD32F107VGT6		108	1024K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
GD32F107ZCT6		108	256K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
GD32F107ZDT6		108	384K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
GD32F107ZET6		108	512K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
GD32F107ZFT6		108	768K	96K	up to 112	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144
GD32F107ZGT6		108	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	2	OTG	2	2	(16)	2	LQFP144

# GD32F1 series of 32-bit ARM® Cortex®-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer				Connectivity					Analog Interface		Package				
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART (UART)	1°C SPI	CAN 2.0B	USB 2.0 FS	1²S		SDIO	Ether-net	EXMC	12bit ADC Units (CHs)
	GD32F101T4U6	56	16K	4K	up to 26	2				1	2	1	2	1	1			1(10)		QFN36	
	GD32F101T6U6	56	32K	6K	up to 26	2				1	2	1	2	1	1			1(10)		QFN36	
	GD32F101T8U6	56	64K	10K	up to 26	3				1	2	1	2	1	1			1(10)		QFN36	
	GD32F101TBU6	56	128K	16K	up to 26	3				1	2	1	2	1	1			1(10)		QFN36	
	GD32F101C4T6	56	16K	4K	up to 37	2				1	2	1	2	1	1			1(10)		LQFP48	
	GD32F101C6T6	56	32K	6K	up to 37	2				1	2	1	2	1	1			1(10)		LQFP48	
	GD32F101C8T6	56	64K	10K	up to 37	3				1	2	1	3	2	2			1(10)		LQFP48	
	GD32F101CBT6	56	128K	16K	up to 37	3				1	2	1	3	2	2			1(10)		LQFP48	
	GD32F101R4T6	56	16K	4K	up to 51	2				1	2	1	2	1	1			1(16)		LQFP64	
	GD32F101R6T6	56	32K	6K	up to 51	2				1	2	1	2	1	1			1(16)		LQFP64	
	GD32F101R8T6	56	64K	10K	up to 51	3				1	2	1	3	2	2			1(16)		LQFP64	
	GD32F101RBT6	56	128K	16K	up to 51	3				1	2	1	3	2	2			1(16)		LQFP64	
	GD32F101RCT6	56	256K	32K	up to 51	4				2	1	2	1	5	2	3			1(16)	2	LQFP64
	GD32F101RDT6	56	384K	48K	up to 51	4				2	1	2	1	5	2	3			1(16)	2	LQFP64
	GD32F101RET6	56	512K	48K	up to 51	4				2	1	2	1	5	2	3			1(16)	2	LQFP64
	GD32F101RFT6	56	768K	80K	up to 51	10				2	1	2	1	5	2	3			2(16)	2	LQFP64
	GD32F101RGT6	56	1024K	80K	up to 51	10				2	1	2	1	5	2	3			2(16)	2	LQFP64
	GD32F101RIT6	56	2048K	80K	up to 51	10				2	1	2	1	5	2	3			2(16)	2	LQFP64
	GD32F101RKT6	56	3072K	80K	up to 51	10				2	1	2	1	5	2	3			2(16)	2	LQFP64
	GD32F101V8T6	56	64K	10K	up to 80	3				1	2	1	3	2	2			1(16)		LQFP100	
	GD32F101VBT6	56	128K	16K	up to 80	3				1	2	1	3	2	2			1(16)		LQFP100	
	GD32F101VCT6	56	256K	32K	up to 80	4				2	1	2	1	5	2	3			1(16)	2	LQFP100
	GD32F101VDT6	56	384K	48K	up to 80	4				2	1	2	1	5	2	3			1(16)	2	LQFP100
	GD32F101VET6	56	512K	48K	up to 80	4				2	1	2	1	5	2	3			1(16)	2	LQFP100
	GD32F101VFT6	56	768K	80K	up to 80	10				2	1	2	1	5	2	3			2(16)	2	LQFP100
	GD32F101VGT6	56	1024K	80K	up to 80	10				2	1	2	1	5	2	3			2(16)	2	LQFP100
	GD32F101VIT6	56	2048K	80K	up to 80	10				2	1	2	1	5	2	3			2(16)	2	LQFP100
	GD32F101VKT6	56	3072K	80K	up to 80	10				2	1	2	1	5	2	3			2(16)	2	LQFP100
	GD32F101ZCT6	56	256K	32K	up to 112	4				2	1	2	1	5	2	3			1(16)	2	LQFP144
	GD32F101ZDT6	56	384K	48K	up to 112	4				2	1	2	1	5	2	3			1(16)	2	LQFP144
	GD32F101ZET6	56	512K	48K	up to 112	4				2	1	2	1	5	2	3			1(16)	2	LQFP144
	GD32F101ZFT6	56	768K	80K	up to 112	10				2	1	2	1	5	2	3			2(16)	2	LQFP144
	GD32F101ZGT6	56	1024K	80K	up to 112	10				2	1	2	1	5	2	3			2(16)	2	LQFP144
	GD32F101ZIT6	56	2048K	80K	up to 112	10				2	1	2	1	5	2	3			2(16)	2	LQFP144
	GD32F101ZKT6	56	3072K	80K	up to 112	10				2	1	2	1	5	2	3			2(16)	2	LQFP144

GD32F101

# SPI NOR Flash

## GD SPI NOR Flash Features

3.0V

- ◆ **Single Power Supply Voltage**
  - Voltage range: 2.7V~3.6V
- ◆ **High Speed Clock Frequency**
  - Maximum 120MHz for fast read with 30pF load\*
  - Dual I/O Data transfer up to 240Mbits/s
  - Quad I/O Data transfer up to 480Mbits/s
  - Continuous Read With 8/16/32/64-Byte Wrap
- ◆ **Flexible Memory Architecture**
  - Sector Size: 4K Bytes
  - Block Size: 32/64K Bytes

2.5V

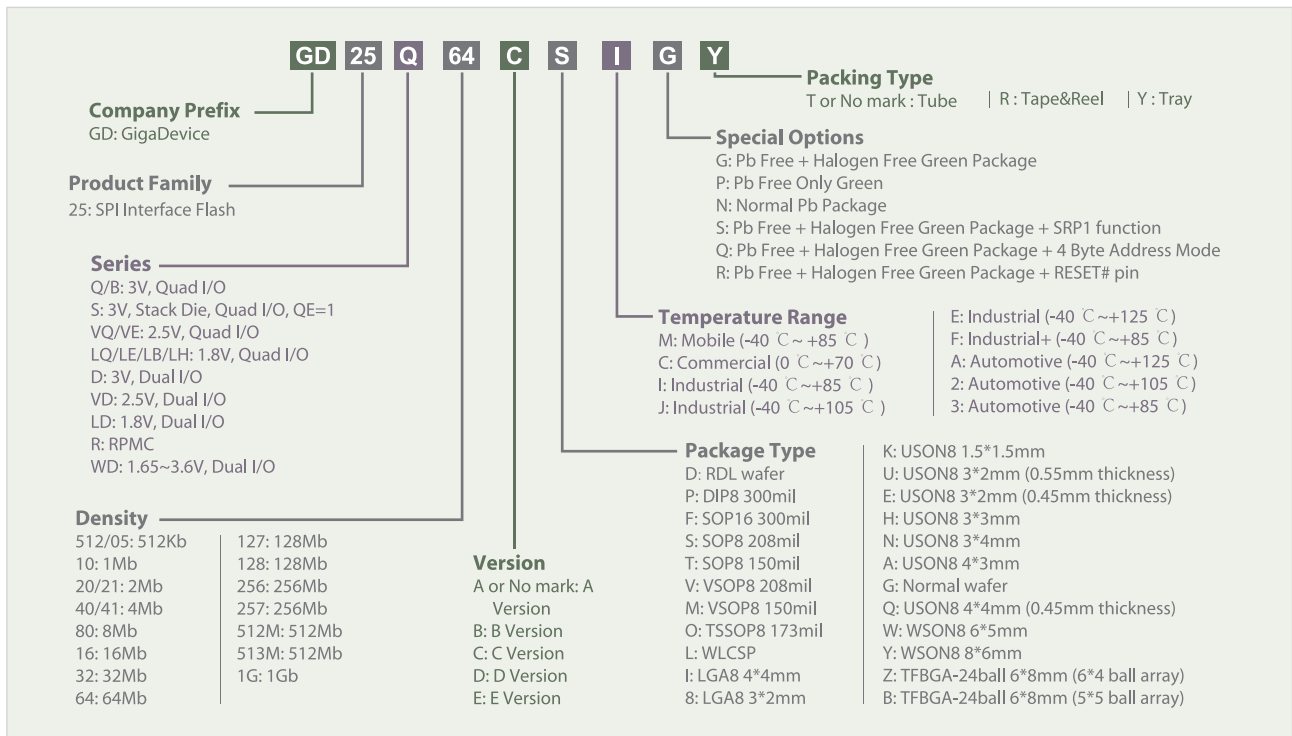
- ◆ **Single Power Supply Voltage**
  - Voltage range: 2.3V~3.6V
- ◆ **High Speed Clock Frequency**
  - Maximum 104MHz for fast read with 30pF load\*
  - Dual I/O Data transfer up to 208Mbits/s
  - Quad I/O Data transfer up to 416Mbits/s
  - Continuous Read With 8/16/32/64-Byte Wrap
- ◆ **Flexible Memory Architecture**
  - Sector Size: 4K Bytes
  - Block Size: 32/64K Bytes

1.8V

- ◆ **Single Power Supply Voltage**
  - Voltage range: 1.65V~2.0V
- ◆ **High Speed Clock Frequency**
  - 120MHz for fast read with 30pF load\*
  - Dual I/O Data transfer up to 240MHz
  - Quad I/O Data transfer up to 480Mbits/s
  - QPI Data transfer up to 480Mbits/s
  - Continuous Read With 8/16/32/64-Byte Wrap
- ◆ **Flexible Memory Architecture**
  - Sector Size: 4K Bytes
  - Block Size: 32/64K Bytes

\* This feature is available on most of devices. Please refer to page 16-19.

## GD SPI NOR Flash Part Number Definition







## GD SPI NOR Flash Feature List

Flash Type	3.0V					2.5V			1.8V				1.65-3.6V	
Family	GD25Q	GD25B	GD25R	GD25S	GD25D	GD25VQ	GD25VE	GD25VD	GD25LQ	GD25LB	GD25LH	GD25LE	GD25LD	GD25WD
Part No.	xxC xxD	xxC xxD	xxC xxD	xxD	xxD	xxC	xxC	xxB	xxC xxD	xxC xxD	xxC xxD	xxC xxD	xxC	xxC
Single I/O (1-1-1)	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dual Output (1-1-2)	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Dual I/O (1-2-2)	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Quad Output (1-1-4)	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Quad I/O (1-4-4)	•	•	•	•	•	•	•	•	•	•	•	•	•	•
QPI (4-4-4)									•	•	•	•		
HOLD# Pin	•					•	•		•		•	•		
H/W Reset (RESET# Pin)	*			•		*	*							
S/W Reset	•	•	•	•		•	•		•	•	•	•		
H/W Write Protection (WP# Pin)	•				•	•	•	•	•	•	•	•	•	•
S/W Write Protection	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Enhanced Block Protection	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Volatile & Non-volatile Status Register Bit	•	•	•	•	•	•	•	•	•	•	•	•		
Output Driver Strength	*	*	*	•		*	*							
Security Registers with OTP Locks	•	•	•	•		•	•		•	•	•	•		
SFDP Register	•	•	•	•		•	•		•	•	•	•		

\* This feature is supported by part of the family

## GD SPI NOR Flash Product List

Part No.	Density	Voltage	Organization	I/O Bus	Frequency (MHz)
GD25S513MD	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4) 80MHz(DTR)
GD25S512MD	512Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25R256D	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25Q257D	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4) 80MHz(DTR)
GD25Q256D	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25B257D	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4) 80MHz(DTR)
GD25B256D	256Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25Q127C	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25B127D	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25R127D	128Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25Q64C	64Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25B64C	64Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25Q32C	32Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25B32C	32Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25Q16C	16Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25B16C	16Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25Q80C	8Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25Q40C	4Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25B40C	4Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25Q20C	2Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25D80C	8Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25D40C	4Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25D20C	2Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25D10C	1Mb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25D05C	512Kb	2.7V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25VQ127C	128Mb	2.3V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VQ64C	64Mb	2.3V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VE64C	64Mb	2.1V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VQ32C	32Mb	2.3V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VE32C	32Mb	2.1V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VQ16C	16Mb	2.3V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VE16C	16Mb	2.1V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VQ80C	8Mb	2.3V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VQ40C	4Mb	2.3V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VE40C	4Mb	2.1V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VQ20C	2Mb	2.3V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25VE20C	2Mb	2.1V-3.6V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LQ256D	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LE256D	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LB256D	256Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LQ128D	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LE128D	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)



Part No.	Density	Voltage	Organization	I/O Bus	Frequency (MHz)
GD25LB128D	128Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LQ64C	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LE64C	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LB64C	64Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LQ32D	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LH32D	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LE32D	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LB32D	32Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual / Quad	120MHz(x1, x2, x4)
GD25LQ16C	16Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LH16C	16Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LE16C	16Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LQ80C	8Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LH80C	8Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LE80C	8Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LQ40C	4Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LH40C	4Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LE40C	4Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LQ20C	2Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LH20C	2Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LE20C	2Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LQ10C	1Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LH10C	1Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LE10C	1Mb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LQ05C	512Kb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LH05C	512Kb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LE05C	512Kb	1.65V-2.1V	4KB / 32KB / 64KB	Single / Dual / Quad	104MHz(x1, x2, x4)
GD25LD80C	8Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)
GD25LD40C	4Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)
GD25LD20C	2Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)
GD25LD10C	1Mb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)
GD25LD05C	512Kb	1.65V-2.0V	4KB / 32KB / 64KB	Single / Dual Output	50MHz(x1) 40MHz(x2)
GD25WD80C	8Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25WD40C	4Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25WD20C	2Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25WD10C	1Mb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)
GD25WD05C	512Kb	1.65V-3.6V	4KB / 32KB / 64KB	Single / Dual Output	100MHz(x1) 80MHz(x2)

Product Series

3V

Q: Quad I/O, General  
 B: Quad I/O, QE=1  
 D: Dual Output  
 R: Quad I/O, QE=1, For RPMC  
 S: Quad I/O, Stack Die, QE=1

2.5V

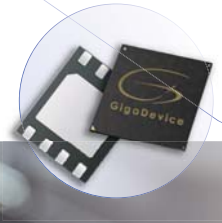
VQ: Quad I/O, General  
 VE: Quad I/O, Low Power

1.8V

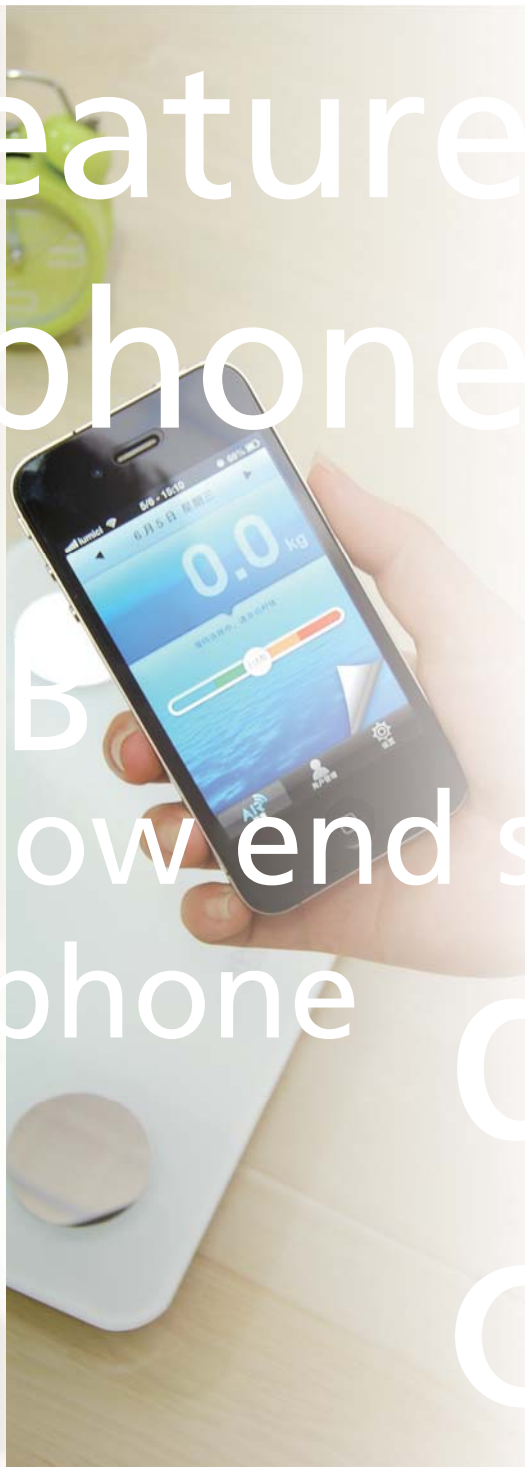
LQ: Quad I/O, General  
 LB: Quad I/O, QE=1  
 LH: Quad I/O, Faster tpp  
 LD: Dual Output  
 LE: Quad I/O, Low Power



# SPI NAND Flash



Feature  
TV  
phone  
STB  
low end smart  
phone  
data  
card



## GD SPI NAND Flash Features

### 3.0V

- ◆ **Power Supply Voltage:** 2.7V~3.6V
- ◆ **High Speed Clock Frequency**
  - 120MHz for fast read with 30PF load
  - Quad I/O Data transfer up to 480Mbits/s
- ◆ **Flexible Memory Architecture**  
**1Gbit & 2Gbit:**
  - 2048-Byte page for read and program, spare area 128-Byte
  - (128K + 8K)-Byte per block for erase
- ◆ **Enhanced Access Performance**
  - 2K-Byte cache for fast random read for 1G & 2G
  - Cache read and cache program
- ◆ **Advanced Feature for NAND**
  - Internal ECC option
  - Internal data move by page with ECC
  - Promised good block0 with ECC

### 1.8V

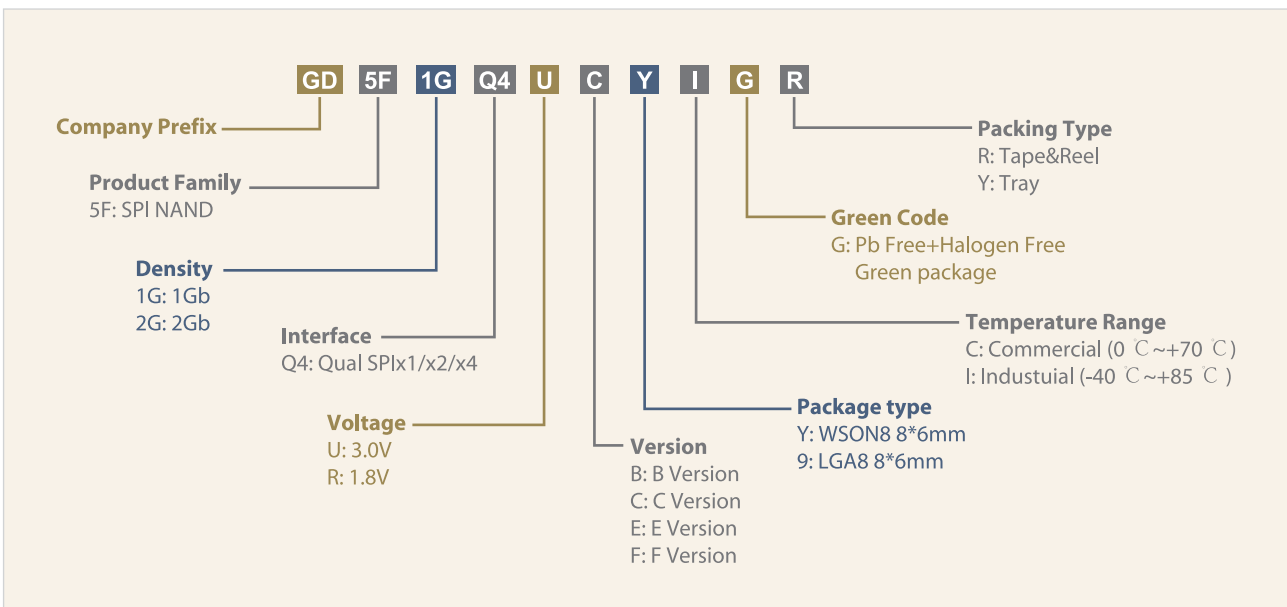
- ◆ **Power Supply Voltage:** 1.7V~2.0V
- ◆ **High Speed Clock Frequency**
  - 120MHz for fast read with 30PF load
  - Quad I/O Data transfer up to 480Mbits/s
- ◆ **Flexible Memory Architecture**  
**1Gbit & 2Gbit:**
  - 2048-Byte page for read and program, spare area 128-Byte
  - (128K + 8K)-Byte per block for erase
- ◆ **Enhanced Access Performance**
  - 2K-Byte cache for fast random read for 1G & 2G
  - Cache read and cache program
- ◆ **Advanced Feature for NAND**
  - Internal ECC option
  - Internal data move by page with ECC
  - Promised good block0 with ECC

## GD SPI NAND Flash Product List

Part No.	Density	Package
GD5F2GQ4U	2Gb	LGA8 8*6mm
GD5F1GQ4U	1Gb	WSON8 8*6mm

Part No.	Density	Package
GD5F2GQ4R	2Gb	LGA8 8*6mm
GD5F1GQ4R	1Gb	LGA8 8*6mm

## GD SPI NAND Flash Part Number Definition





### Advantages – Small Size

Reduce Package cost

### Advantages – Less Pin



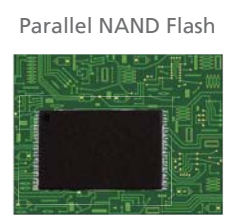
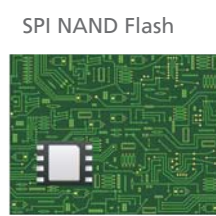
Reduce Core Chip Cost

Fewer pins required by SPI NAND reduces the Core Chip pin count.

### Advantages – PCB cost

Reduced pin count Core Chip and small SPI NAND Flash chip result in smaller PCB area and cost reduction.

Reduce PCB Cost ▲



### Advantages – Design

Reduce PCB difficulty  
Cut down design cycles ▼

Less pins than Parallel NAND Flash, help make it easier for layout, reduce PCB design difficulty, Cut down design cycles of electronic products.

Design based on SPI NAND Flash

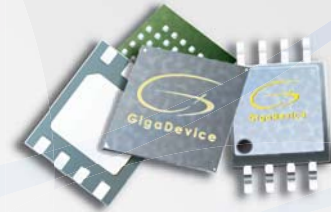


Design based on Parallel NAND Flash







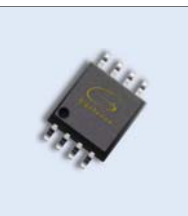
# GigaDevice




# Flash Package Options


T		<b>SOP8 150mil</b>	
		Length(Normal)	4.90
		Width(Normal)	6.00
		Thickness(Max)	1.75
		Pitch(Normal)	1.27
		mm	

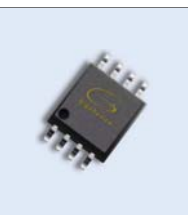
P		<b>DIP8 300mil</b>	
		Length(Normal)	9.32
		Width(Normal)	7.94
		Thickness(Max)	3.50
		Pitch(Normal)	2.54
		mm	


S		<b>SOP8 208mil</b>	
		Length(Normal)	5.23
		Width(Normal)	7.90
		Thickness(Max)	2.16
		Pitch(Normal)	1.27
		mm	


Z		<b>TFBGA-24ball 6*8mm (6*4ball array)</b>	
		Length(Normal)	6.00
		Width(Normal)	8.00
		Thickness(Max)	1.20
		Pitch(Normal)	1.00
		mm	


M		<b>VSOP8 150mil</b>	
		Length(Normal)	4.90
		Width(Normal)	6.00
		Thickness(Max)	0.90
		Pitch(Normal)	1.27
		mm	


B		<b>TFBGA-24ball 6*8mm (5*5ball array)</b>	
		Length(Normal)	6.00
		Width(Normal)	8.00
		Thickness(Max)	1.20
		Pitch(Normal)	1.00
		mm	


V		<b>VSOP8 208mil</b>	
		Length(Normal)	5.28
		Width(Normal)	7.90
		Thickness(Max)	1.00
		Pitch(Normal)	1.27
		mm	


8		<b>LGA8 3*2mm</b>	
		Length(Normal)	3.00
		Width(Normal)	2.00
		Thickness(Max)	0.50
		Pitch(Normal)	0.50
		mm	


O		<b>TSSOP8 173mil</b>	
		Length(Normal)	2.96
		Width(Normal)	6.40
		Thickness(Max)	1.20
		Pitch(Normal)	0.65
		mm	


9		<b>LGA8 8*6mm</b>	
		Length(Normal)	8.00
		Width(Normal)	6.00
		Thickness(Max)	0.80
		Pitch(Normal)	1.27
		mm	

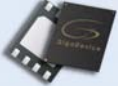
F		<b>SOP16 300mil</b>	
		Length(Normal)	10.30
		Width(Normal)	10.35
		Thickness(Max)	2.75
		Pitch(Normal)	1.27
		mm	


K		<b>USON8 1.5*1.5mm</b>	
		Length(Normal)	1.50
		Width(Normal)	1.50
		Thickness(Max)	0.50
		Pitch(Normal)	0.40
		mm	

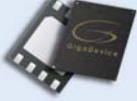
U		<b>USON8 3*2mm (0.55mm)</b>	
		Length(Normal)	3.00
		Width(Normal)	2.00
		Thickness(Max)	0.60
		Pitch(Normal)	0.50
		mm	


Q		<b>USON8 4*4mm (0.45mm)</b>	
		Length(Normal)	4.00
		Width(Normal)	4.00
		Thickness(Max)	0.50
		Pitch(Normal)	0.80
		mm	


E		<b>USON8 3*2mm (0.45mm)</b>	
		Length(Normal)	3.00
		Width(Normal)	2.00
		Thickness(Max)	0.50
		Pitch(Normal)	0.50
		mm	


W		<b>WSON8 6*5mm</b>	
		Length(Normal)	6.00
		Width(Normal)	5.00
		Thickness(Max)	0.80
		Pitch(Normal)	1.27
		mm	


H		<b>USON8 3*3mm</b>	
		Length(Normal)	3.00
		Width(Normal)	3.00
		Thickness(Max)	0.60
		Pitch(Normal)	0.50
		mm	

Y		<b>WSON8 8*6mm</b>	
		Length(Normal)	8.00
		Width(Normal)	6.00
		Thickness(Max)	0.80
		Pitch(Normal)	1.27
		mm	

N		<b>USON8 3*4mm</b>	
		Length(Normal)	3.00
		Width(Normal)	4.00
		Thickness(Max)	0.60
		Pitch(Normal)	0.80
		mm	

L		<b>WLCSP</b>	
		Depends on specific product	

A		<b>USON8 4*3mm</b>	
		Length(Normal)	4.00
		Width(Normal)	3.00
		Thickness(Max)	0.60
		Pitch(Normal)	0.80
		mm	

J		<b>USON8 4*4mm (0.55mm)</b>	
		Length(Normal)	4.00
		Width(Normal)	4.00
		Thickness(Max)	0.60
		Pitch(Normal)	0.80
		mm	

## Note:

1. The values provided are the normal values for length, width and pitch, as well as the max values for thickness.
2. The pictures are for reference only, please subject to practicality.

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