



GigaDevice Semiconductor (Beijing) Inc.



# LIVE SMART

## PRODUCT SELECTION GUIDE

GD32 MCU  
SPI NOR Flash  
SPI NAND Flash  
Parallel NAND Flash



# About Us

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Established in 2005, GigaDevice is a leading fabless company engaged in advanced memory technology and IC solutions. The company has successfully completed IPO at the Shanghai Stock Exchange in 2016. GigaDevice provides a wide range of high performance Flash memory and 32-bit general-purpose MCU products. GigaDevice is one of the companies that pioneered SPI NOR Flash memory and is currently one of the top three suppliers in the world with annual shipment more than 1 billion units.

Since 2007, GigaDevice is ISO9001 and ISO14001 certified by SGS. GigaDevice has filed 800+ patent applications with 350+ patents granted. More than 55% employees are in research and development, which continues to differentiate our products from competitors in the market.

GigaDevice produces a wide range of SPI NOR Flash, SPI NAND Flash, ONFi NAND Flash and MCU for embedded systems ranging from automotive, industrial, computing, consumer electronics, IoT, mobile applications to networking and telecom. GigaDevice has built strong relationships with partners in foundry, assembly and testing, creating a fabless manufacturing model with many advantages over the conventional fabrication-based Integrated Device Manufacturers. 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 competitors. For more information, please visit [www.gigadevice.com](http://www.gigadevice.com)



Welcome to  
GigaDevice

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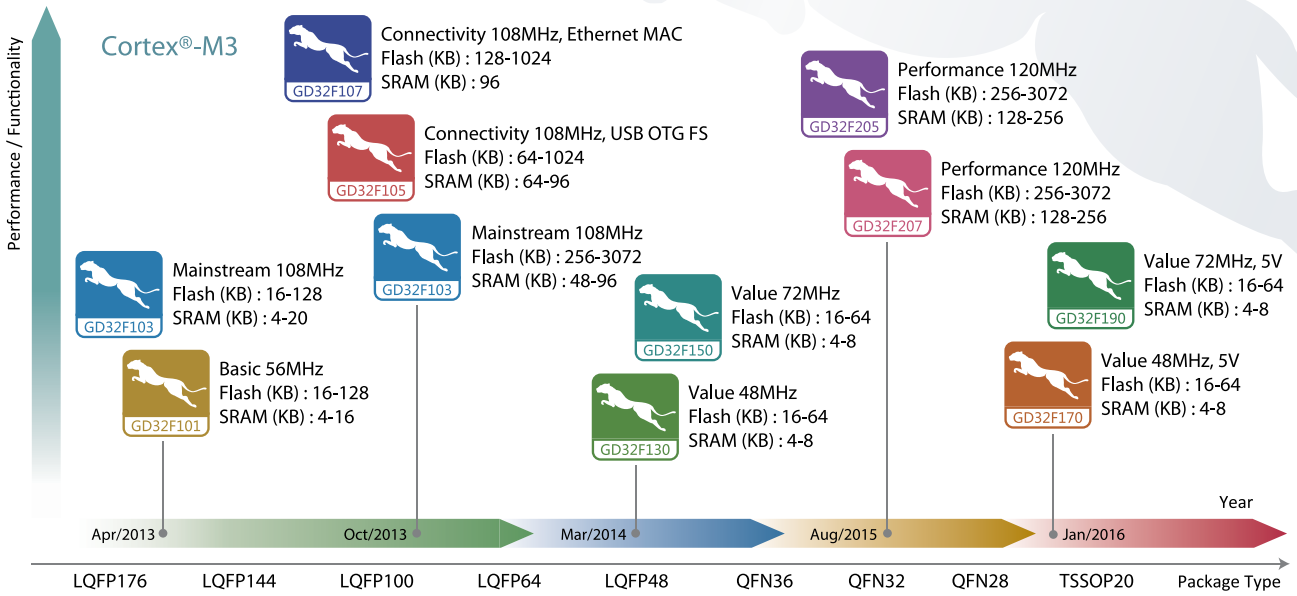
ARM CORTEX  
Processor Technology

ARM University  
Worldwide Education Program

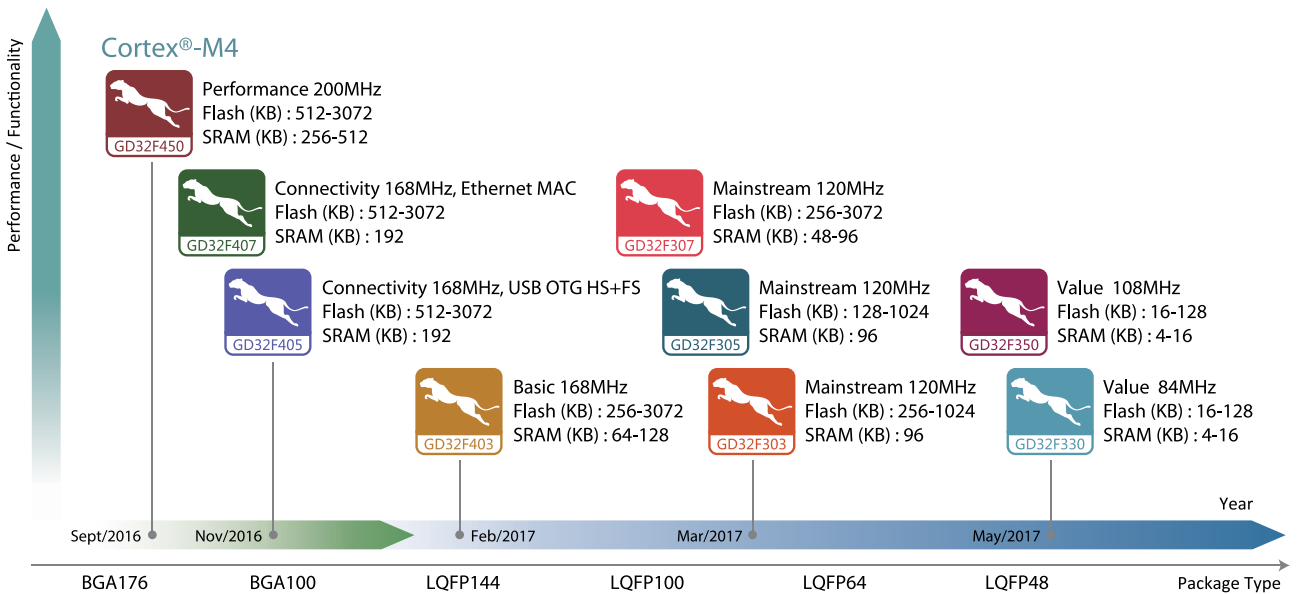
ARM Connected Community

# GD32 MCU

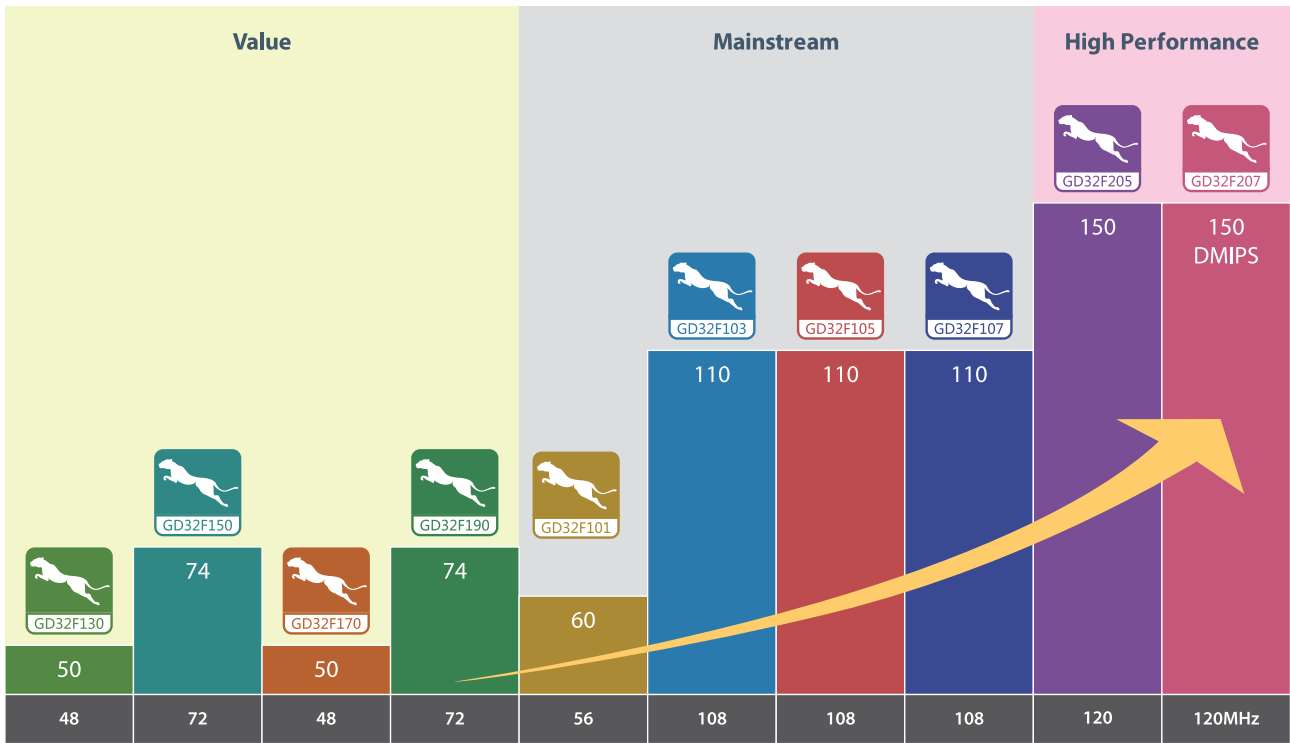
## GD32 Cortex®-M3 MCU Portfolios



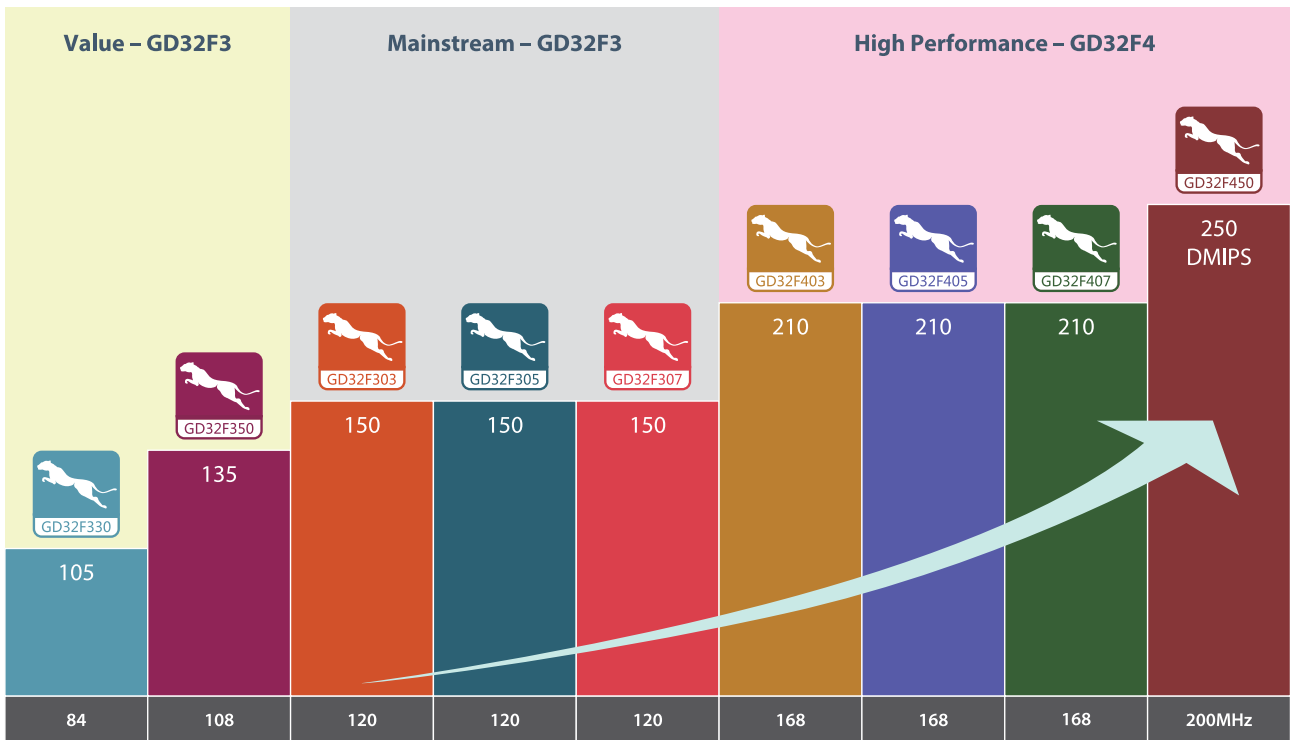
## GD32 Cortex®-M4 MCU Portfolios



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



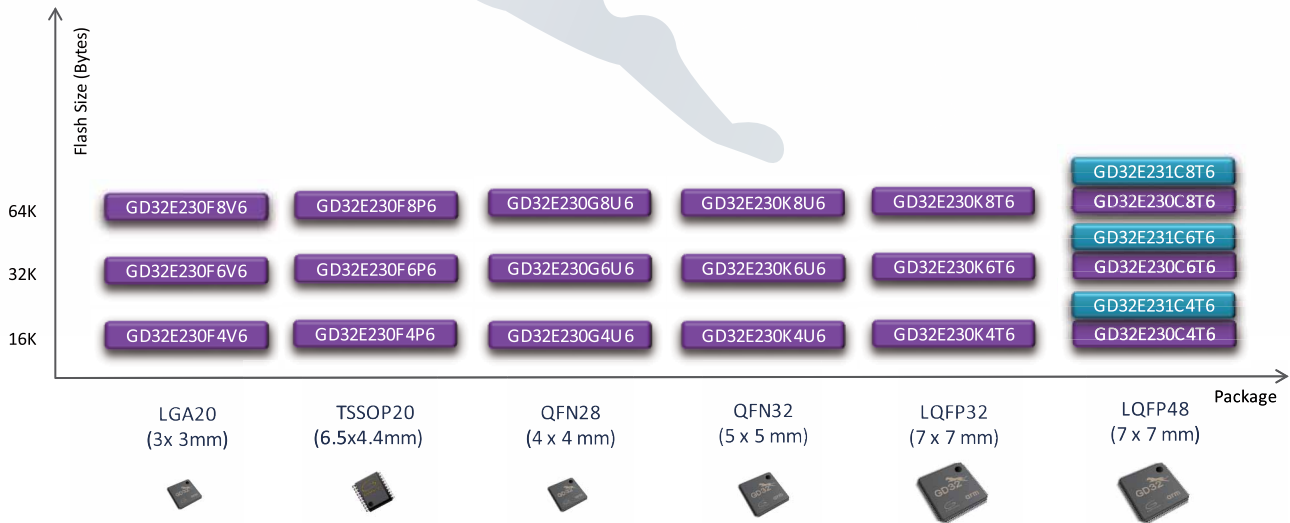
## GD32 Cortex<sup>®</sup>-M4 Portfolios ~100P/N



## GD32 Cortex<sup>®</sup>-M23 Portfolios ~20P/N



- GD32E230 & GD32E231 Arm Cortex<sup>®</sup>-M23 value line @ 72MHz**
- 16K-64K Flash, 4K-8K SRAM**
- 1.8-3.6V supply; 5V tolerance I/Os**
- 40°C to +85°C industrial level operating temperature**
- Series pin to pin compatible and flexible S/W compatible**



## GD32 Cortex<sup>®</sup>-M MCU Portfolios

		Arm <sup>®</sup> Cortex <sup>®</sup> -M 32-bit MCUs					
		Cortex <sup>®</sup> -M23	Cortex <sup>®</sup> -M3		Cortex <sup>®</sup> -M4		
GD32 MCU Family	High-Performance		GD32F205 120MHz, 3M Flash, 256K RAM	GD32F207 120MHz, 3M Flash, 256K RAM	GD32F450 200MHz, 3M Flash, 512K RAM	GD32F407 168MHz, 3M Flash, 192K RAM	
			GD32F405 168MHz, 3M Flash, 192K RAM	GD32F403 168MHz, 3M Flash, 128K RAM			
	Mainstream		GD32F105 108MHz, 1M Flash, 96K RAM	GD32F107 108MHz, 1M Flash, 96K RAM	GD32F305 120MHz, 1M Flash, 96K RAM	GD32F307 120MHz, 1M Flash, 96K RAM	
			GD32F103 108MHz, 3M Flash, 96K RAM	GD32F101 56MHz, 3M Flash, 80K RAM	GD32F303 120MHz, 3M Flash, 96K RAM	GD32E103 120MHz, 128K Flash, 32K RAM	
	Entry-Level	GD32E231 72MHz, 64K Flash, 8K RAM	GD32F170 48MHz, 64K Flash, 8K RAM	GD32F190 72MHz, 64K Flash, 8K RAM			
		GD32E230 72MHz, 64K Flash, 8K RAM	GD32F130 48MHz, 64K Flash, 8K RAM	GD32F150 72MHz, 64K Flash, 8K RAM	GD32F330 84MHz, 128K Flash, 16K RAM	GD32F350 108MHz, 128K Flash, 16K RAM	
	Specific				GD32FFPR 168MHz, 1M Flash, 128K RAM		















## GD32 Development Eco-system

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



## 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)
					



# GD32E23x series of 32-bit ARM® Cortex®-M23 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity						Analog Interface		Package				
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	USB 2.0 FS	I <sup>2</sup> S	Comp	OP-AMP	12bit ADC Units (Chs)		12bit DAC Units			
GD32E231	GD32E230F4V6	72	16K	4K	up to 15		4	1	1	1	2	1	1	1	1	1	1	1	1	1	1(9)		LGA20		
	GD32E230F6V6	72	32K	6K	up to 15		4	1	1	1	2	1	2	1	1	1	1	1	1	1	1(9)		LGA20		
	GD32E230F8V6	72	64K	8K	up to 15		4	1	1	1	2	1	2	2	2	2	2	2	2	1	1	1(9)		LGA20	
	GD32E230F4P6	72	16K	4K	up to 15		4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1(9)		TSSOP20	
	GD32E230F6P6	72	32K	6K	up to 15		4	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1(9)		TSSOP20	
	GD32E230F8P6	72	64K	8K	up to 15		4	1	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1(9)		TSSOP20
	GD32E230G4U6	72	16K	4K	up to 23		4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1(10)		QFN28	
	GD32E230G6U6	72	32K	6K	up to 23		4	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1(10)		QFN28	
	GD32E230G8U6	72	64K	8K	up to 23		5	1	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1(10)		QFN28
	GD32E230K4U6	72	16K	4K	up to 27		4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1(10)		QFN32	
	GD32E230K6U6	72	32K	6K	up to 27		4	1	1	1	2	1	2	2	1	1	1	1	1	1	1	1(10)		QFN32	
	GD32E230K8U6	72	64K	8K	up to 27		5	1	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1(10)		QFN32
	GD32E230K4T6	72	16K	4K	up to 25		4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1(10)		LQFP32	
	GD32E230K6T6	72	32K	6K	up to 25		4	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1(10)		LQFP32	
	GD32E230K8T6	72	64K	8K	up to 25		5	1	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1(10)		LQFP32
	GD32E230C4T6	72	16K	4K	up to 39		4	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1(10)		LQFP48	
	GD32E230C6T6	72	32K	6K	up to 39		4	1	1	1	2	1	2	1	1	1	1	1	1	1	1	1(10)		LQFP48	
	GD32E230C8T6	72	64K	8K	up to 39		5	1	1	1	2	1	2	2	2	2	2	2	2	2	1	1	1(10)		LQFP48
GD32E231C4T6	72	16K	4K	up to 39		4	1	1	1	2	1	1	1	1	1	1	1	1	1	2	1(10)		LQFP48		
GD32E231C6T6	72	32K	6K	up to 39		4	1	1	1	2	1	2	1	1	1	1	1	1	2	1(10)		LQFP48			
GD32E231C8T6	72	64K	8K	up to 39		5	1	1	1	2	1	2	2	2	2	2	2	2	2	1	1	2	1(10)		LQFP48

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

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity							EXMC	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	Ether-net		12bit ADC Units (Chs)	12bit DAC Units		
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
	GD32E103T8U6	120	128K	32K	up to 26	4	1	2	1	2	1	2+0	1	1	2 x FD	OTG						2(10)	2	QFN36
	GD32E103C8T6	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
	GD32E103R8T6	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
	GD32E103VBT6	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								EXMC/SDRAM	Analog Interface		Package			
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	GPTM (32bit)	Bsc TM (16bit)	WDG	RTC	USART+UART	I <sup>2</sup> C	SPI	CAN 2.0B	USB OTG	I <sup>2</sup> S	SDIO	LCD-TFT		Cam era	ETH MAC		IPA	12bit ADC Units (CHs)	12bit DAC Units
GD32F450	GD32F450VET6	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	1/0	3(16)	2	LQFP100
	GD32F450VGT6	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	1/0	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	1/0	3(16)	2	LQFP100
	GD32F450VKT6	200	3072K	256K	up to 82	8	2	2	2	2	1	4+4	3	5	2	FS+HS	2	1	1	1	1	1	1/0	3(16)	2	LQFP100
	GD32F450ZET6	200	512K	256K	up to 114	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	LQFP144
	GD32F450ZGT6	200	1024K	256K	up to 114	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	LQFP144
	GD32F450ZIT6	200	2048K	512K	up to 114	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	LQFP144
	GD32F450ZKT6	200	3072K	256K	up to 114	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	LQFP144
	GD32F450IGH6	200	1024K	256K	up to 140	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	BGA176
	GD32F450IHH6	200	2048K	512K	up to 140	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	BGA176
GD32F450IKH6	200	3072K	256K	up to 140	8	2	2	2	2	1	4+4	3	6	2	FS+HS	2	1	1	1	1	1	1/1	3(24)	2	BGA176	
GD32F405	GD32F405RET6	168	512K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(16)	2	LQFP64
	GD32F405RGT6	168	1024K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(16)	2	LQFP64
	GD32F405RKT6	168	3072K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(16)	2	LQFP64
	GD32F405VGT6	168	1024K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(16)	2	LQFP100
	GD32F405VKT6	168	3072K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(16)	2	LQFP100
	GD32F405VGH6	168	1024K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(16)	2	BGA100
	GD32F405VKH6	168	3072K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(16)	2	BGA100
	GD32F405ZGT6	168	1024K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(24)	2	LQFP144
	GD32F405ZKT6	168	3072K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1				3(24)	2	LQFP144
	GD32F407	GD32F407RET6	168	512K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1			3(16)	2
	GD32F407RGT6	168	1024K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1			3(16)	2	LQFP64
	GD32F407RKT6	168	3072K	192K	up to 51	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1			3(16)	2	LQFP64
	GD32F407VET6	168	512K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/0	3(16)	2	LQFP100
	GD32F407VGT6	168	1024K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/0	3(16)	2	LQFP100
	GD32F407VKT6	168	3072K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/0	3(16)	2	LQFP100
	GD32F407VEH6	168	512K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/0	3(16)	2	BGA100
	GD32F407VGH6	168	1024K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/0	3(16)	2	BGA100
	GD32F407VKH6	168	3072K	192K	up to 82	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/0	3(16)	2	BGA100
	GD32F407ZET6	168	512K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/1	3(24)	2	LQFP144
	GD32F407ZGT6	168	1024K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/1	3(24)	2	LQFP144
	GD32F407ZKT6	168	3072K	192K	up to 114	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/1	3(24)	2	LQFP144
	GD32F407IEH6	168	512K	192K	up to 140	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/1	3(24)	2	BGA176
	GD32F407IGH6	168	1024K	192K	up to 140	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/1	3(24)	2	BGA176
	GD32F407IKH6	168	3072K	192K	up to 140	8	2	2	2	2	1	4+2	3	3	2	FS+HS	2	1		1	1		1/1	3(24)	2	BGA176



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity										EXMC/SDRAM	Analog Interface		Package		
			Flash	SRAM		GPTM (16bit)	Adv TM (16bit)	GPTM (32bit)	Bsc TM (16bit)	WDG	RTC	USART +UART	I <sup>2</sup> C	SPI	CAN 2.0B	USB OTG	I <sup>2</sup> S	SDIO	LCD-TFT	Cam era	ETH MAC		IPA	12bit ADC Units (Chs)		12bit DAC Units	
GD32F403	GD32F403RCT6	168	256K	64K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1						0/0	3(16)	2	LQFP64
	GD32F403RET6	168	512K	96K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1						0/0	3(16)	2	LQFP64
	GD32F403RGT6	168	1024K	128K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1						0/0	3(16)	2	LQFP64
	GD32F403RIT6	168	2048K	128K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1						0/0	3(16)	2	LQFP64
	GD32F403RKT6	168	3072K	128K	up to 51	8	2		2	2	1	3+2	2	3	2	OTG	2	1						0/0	3(16)	2	LQFP64
	GD32F403VCT6	168	256K	64K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	LQFP100
	GD32F403VET6	168	512K	96K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	LQFP100
	GD32F403VGT6	168	1024K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	LQFP100
	GD32F403VIT6	168	2048K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	LQFP100
	GD32F403VKT6	168	3072K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	LQFP100
	GD32F403VCH6	168	256K	64K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	BGA100
	GD32F403VEH6	168	512K	96K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	BGA100
	GD32F403VGH6	168	1024K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	BGA100
	GD32F403VIH6	168	2048K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	BGA100
	GD32F403VKH6	168	3072K	128K	up to 80	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(16)	2	BGA100
	GD32F403ZCT6	168	256K	64K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(21)	2	LQFP144
	GD32F403ZET6	168	512K	96K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(21)	2	LQFP144
	GD32F403ZGT6	168	1024K	128K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(21)	2	LQFP144
GD32F403ZIT6	168	2048K	128K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(21)	2	LQFP144	
GD32F403ZKT6	168	3072K	128K	up to 112	8	2		2	2	1	3+2	2	3	2	OTG	2	1						1/0	3(21)	2	LQFP144	

## GD32F3 series of 32-bit ARM<sup>®</sup> Cortex<sup>®</sup>-M4 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity								EXMC	Analog Interface		Package			
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic 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	Ether-net		12bit ADC Units (Chs)	12bit DAC Units				
GD32F303	GD32F303CCT6	120	256K	48K	up to 37	4	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	3	2	3	1	1	2							3(10)	2	LQFP48
	GD32F303CGT6	120	1024K	96K	up to 37	10	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	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303RET6	120	512K	64K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303RIT6	120	2048K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303RKT6	120	3072K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1						3(16)	2	LQFP64
	GD32F303VCT6	120	256K	48K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1					•	3(16)	2	LQFP100
	GD32F303VET6	120	512K	64K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1					•	3(16)	2	LQFP100
	GD32F303VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1					•	3(16)	2	LQFP100
	GD32F303VIT6	120	2048K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1					•	3(16)	2	LQFP100
	GD32F303VKT6	120	3072K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1					•	3(16)	2	LQFP100
	GD32F303ZCT6	120	256K	48K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1					•	3(21)	2	LQFP144
	GD32F303ZET6	120	512K	64K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1					•	3(21)	2	LQFP144
	GD32F303ZGT6	120	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1					•	3(21)	2	LQFP144
	GD32F303ZIT6	120	2048K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1					•	3(21)	2	LQFP144
	GD32F303ZKT6	120	3072K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1					•	3(21)	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							EXMC	Analog Interface		Package		
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic 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		Ether-net	12bit ADC Units (CHs)		12bit DAC Units	
GD32F305	GD32F305RBT6	120	128K	64K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2					2(16)	2	LQFP64
	GD32F305RCT6	120	256K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2					2(16)	2	LQFP64
	GD32F305RET6	120	512K	96K	up to 51	4	2	2	1	2	1	5	2	3	2	OTG	2					2(16)	2	LQFP64
	GD32F305RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2					2(16)	2	LQFP64
	GD32F305VCT6	120	256K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP100
	GD32F305VET6	120	512K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP100
	GD32F305VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP100
	GD32F305ZCT6	120	256K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP144
	GD32F305ZET6	120	512K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP144
GD32F307	GD32F307ZGT6	120	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP144
	GD32F307RCT6	120	256K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP64
	GD32F307RET6	120	512K	96K	up to 51	4	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP64
	GD32F307RGT6	120	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP64
	GD32F307VCT6	120	256K	96K	up to 80	4	1	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP100
	GD32F307VET6	120	512K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP100
	GD32F307VGT6	120	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP100
	GD32F307ZCT6	120	256K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP144
	GD32F307ZET6	120	512K	96K	up to 112	4	2	2	1	2	1	5	2	3	2	OTG	2				•	2(16)	2	LQFP144

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity							Analog Interface		Package				
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	USB 2.0 FS	I <sup>2</sup> S	CEC	Comp	12bit ADC Units (CHs)		12bit DAC Units			
GD32F330	GD32F330F4P6	84	16K	4K	up to 15	1	4	1			1	2	1	1	1	1							1(9)		TSSOP20
	GD32F330F6P6	84	32K	4K	up to 15	1	4	1			1	2	1	2	1	1							1(9)		TSSOP20
	GD32F330F8P6	84	64K	8K	up to 15	1	4	1			1	2	1	2	2	2							1(9)		TSSOP20
	GD32F330G4U6	84	16K	4K	up to 23	1	4	1			1	2	1	1	1	1							1(10)		QFN28
	GD32F330G6U6	84	32K	4K	up to 23	1	4	1			1	2	1	2	1	1							1(10)		QFN28
	GD32F330G8U6	84	64K	8K	up to 23	1	5	1			1	2	1	2	2	2							1(10)		QFN28
	GD32F330K4U6	84	16K	4K	up to 27	1	4	1			1	2	1	1	1	1							1(10)		QFN32
	GD32F330K6U6	84	32K	4K	up to 27	1	4	1			1	2	1	2	1	1							1(10)		QFN32
	GD32F330K8U6	84	64K	8K	up to 27	1	5	1			1	2	1	2	2	2							1(10)		QFN32
	GD32F330C4T6	84	16K	4K	up to 39	1	4	1			1	2	1	1	1	1							1(10)		LQFP48
	GD32F330C6T6	84	32K	4K	up to 39	1	4	1			1	2	1	2	1	1							1(10)		LQFP48
	GD32F330C8T6	84	64K	8K	up to 39	1	5	1			1	2	1	2	2	2							1(10)		LQFP48
	GD32F330CBT6	84	128K	16K	up to 39	1	5	1			1	2	1	2	2	2							1(10)		LQFP48
	GD32F330R8T6	84	64K	16K	up to 55	1	5	1			1	2	1	2	2	2							1(16)		LQFP64
	GD32F330RBT6	84	128K	16K	up to 55	1	5	1			1	2	1	2	2	2							1(16)		LQFP64

Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity							Analog Interface		Package		
			Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	USB 2.0 FS	I <sup>2</sup> S	CEC	Comp	12bit ADC Units (CHs)	12bit DAC Units			
GD32F350	GD32F350G4U6	108	16K	4K	up to 24	1	5	1	1	1	2	1	1	1	1	1	1	OTG	1	1	2	1(10)	1	QFN28
	GD32F350G6U6	108	32K	6K	up to 24	1	5	1	1	1	2	1	2	1	1	1	1	OTG	1	1	2	1(10)	1	QFN28
	GD32F350G8U6	108	64K	8K	up to 24	1	5	1	1	1	2	1	2	2	2	2	2	OTG	1	1	2	1(10)	1	QFN28
	GD32F350K4U6	108	16K	4K	up to 27	1	5	1	1	1	2	1	1	1	1	1	1	OTG	1	1	2	1(10)	1	QFN32
	GD32F350K6U6	108	32K	6K	up to 27	1	5	1	1	1	2	1	2	1	1	1	1	OTG	1	1	2	1(10)	1	QFN32
	GD32F350K8U6	108	64K	8K	up to 27	1	5	1	1	1	2	1	2	2	2	2	2	OTG	1	1	2	1(10)	1	QFN32
	GD32F350C4T6	108	16K	4K	up to 39	1	5	1	1	1	2	1	1	1	1	1	1	OTG	1	1	2	1(10)	1	LQFP48
	GD32F350C6T6	108	32K	6K	up to 39	1	5	1	1	1	2	1	2	1	1	1	1	OTG	1	1	2	1(10)	1	LQFP48
	GD32F350C8T6	108	64K	8K	up to 39	1	5	1	1	1	2	1	2	2	2	2	2	OTG	1	1	2	1(10)	1	LQFP48
	GD32F350CBT6	108	128K	16K	up to 39	1	5	1	1	1	2	1	2	2	2	2	2	OTG	1	1	2	1(10)	1	LQFP48
	GD32F350R4T6	108	16K	4K	up to 55	1	5	1	1	1	2	1	1	1	1	1	1	OTG	1	1	2	1(16)	1	LQFP64
	GD32F350R6T6	108	32K	8K	up to 55	1	5	1	1	1	2	1	2	1	1	1	1	OTG	1	1	2	1(16)	1	LQFP64
	GD32F350R8T6	108	64K	16K	up to 55	1	5	1	1	1	2	1	2	2	2	2	2	OTG	1	1	2	1(16)	1	LQFP64
	GD32F350RBT6	108	128K	16K	up to 55	1	5	1	1	1	2	1	2	2	2	2	2	OTG	1	1	2	1(16)	1	LQFP64

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



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity										EXMC/SDRAM		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-TFT	Cam era	ETH MAC	Crypto/ Hash	12bit ADC Units (CHs)	12bit DAC Units					
GD32F205	GD32F205RCT6	120	256K	128K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1									3(16)	2	LQFP64
	GD32F205RET6	120	512K	128K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1									3(16)	2	LQFP64
	GD32F205RGT6	120	1024K	256K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1								3(16)	2	LQFP64	
	GD32F205RKT6	120	3072K	256K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1								3(16)	2	LQFP64	
	GD32F205VCT6	120	256K	128K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1					1/0	3(16)	2	LQFP100		
	GD32F205VET6	120	512K	128K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1					1/0	3(16)	2	LQFP100		
	GD32F205VGT6	120	1024K	256K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1					1/0	3(16)	2	LQFP100		
	GD32F205VKT6	120	3072K	256K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1					1/0	3(16)	2	LQFP100		
	GD32F205ZCT6	120	256K	128K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1					1/1	3(24)	2	LQFP144		
	GD32F205ZET6	120	512K	128K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1					1/1	3(24)	2	LQFP144		
	GD32F205ZGT6	120	1024K	256K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1					1/1	3(24)	2	LQFP144		
	GD32F205ZKT6	120	3072K	256K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1					1/1	3(24)	2	LQFP144		
	GD32F207	GD32F207RCT6	120	256K	128K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1			1	1	1			3(16)	2	LQFP64
		GD32F207RET6	120	512K	128K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1			1	1	1			3(16)	2	LQFP64
GD32F207RGT6		120	1024K	256K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1			1	1	1			3(16)	2	LQFP64	
GD32F207RKT6		120	3072K	256K	up to 51	10	2	2	1	2	1	4+2	3	3	2	OTG	2	1			1	1	1			3(16)	2	LQFP64	
GD32F207VCT6		120	256K	128K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100	
GD32F207VET6		120	512K	128K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100	
GD32F207VGT6		120	1024K	256K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100	
GD32F207VKT6		120	3072K	256K	up to 82	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/0	3(16)	2	LQFP100	
GD32F207ZCT6		120	256K	128K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144	
GD32F207ZET6		120	512K	128K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144	
GD32F207ZGT6		120	1024K	256K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144	
GD32F207ZKT6		120	3072K	256K	up to 114	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP144	
GD32F207IET6		120	512K	128K	up to 140	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP176	
GD32F207IGT6		120	1024K	256K	up to 140	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	1	1	1/1	3(24)	2	LQFP176	
GD32F207IKT6	120	3072K	256K	up to 140	10	2	2	1	2	1	4+4	3	3	2	OTG	2	1	1	1	1	1	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 (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	USB 2.0 FS	I <sup>2</sup> S	CEC	12bit ADC Units (CHs)	12bit DAC Units				
GD32F130	GD32F130F4P6	48	16K	4K	up to 15	1	4	1			1	2	1	1	1	1						1(9)		TSSOP20
	GD32F130F6P6	48	32K	4K	up to 15	1	4	1			1	2	1	2	1	1						1(9)		TSSOP20
	GD32F130F8P6	48	64K	8K	up to 15	1	4	1			1	2	1	2	2	2						1(9)		TSSOP20
	GD32F130G4U6	48	16K	4K	up to 23	1	4	1			1	2	1	1	1	1						1(10)		QFN28
	GD32F130G6U6	48	32K	4K	up to 23	1	4	1			1	2	1	2	1	1						1(10)		QFN28
	GD32F130G8U6	48	64K	8K	up to 23	1	5	1			1	2	1	2	2	2						1(10)		QFN28
	GD32F130K4T6	48	16K	4K	up to 27	1	4	1			1	2	1	1	1	1						1(10)		QFN32
	GD32F130K6T6	48	32K	4K	up to 27	1	4	1			1	2	1	2	1	1						1(10)		QFN32
	GD32F130K8T6	48	64K	8K	up to 27	1	5	1			1	2	1	2	2	2						1(10)		QFN32
	GD32F130K4U6	48	16K	4K	up to 27	1	4	1			1	2	1	1	1	1						1(10)		QFN32
	GD32F130K6U6	48	32K	4K	up to 27	1	4	1			1	2	1	2	1	1						1(10)		QFN32
	GD32F130K8U6	48	64K	8K	up to 27	1	5	1			1	2	1	2	2	2						1(10)		QFN32
	GD32F130C4T6	48	16K	4K	up to 39	1	4	1			1	2	1	1	1	1						1(10)		LQFP48
	GD32F130C6T6	48	32K	4K	up to 39	1	4	1			1	2	1	2	1	1						1(10)		LQFP48
GD32F130C8T6	48	64K	8K	up to 39	1	5	1			1	2	1	2	2	2						1(10)		LQFP48	
GD32F130R8T6	48	64K	8K	up to 55	1	5	1			1	2	1	2	2	2						1(16)		LQFP64	
GD32F150	GD32F150G4U6	72	16K	4K	up to 24	1	5	1		1	2	1	1	1	1	1	1	1	1	1	1	1(10)	1	QFN28
	GD32F150G6U6	72	32K	6K	up to 24	1	5	1		1	2	1	2	1	1	1	1	1	1	1	1	1(10)	1	QFN28
	GD32F150G8U6	72	64K	8K	up to 24	1	5	1		1	2	1	2	2	2	1	1	1	1	1	1	1(10)	1	QFN28
	GD32F150K4U6	72	16K	4K	up to 27	1	5	1		1	2	1	1	1	1	1	1	1	1	1	1	1(10)	1	QFN32
	GD32F150K6U6	72	32K	6K	up to 27	1	5	1		1	2	1	2	1	1	1	1	1	1	1	1	1(10)	1	QFN32
	GD32F150K8U6	72	64K	8K	up to 27	1	5	1		1	2	1	2	2	2	1	1	1	1	1	1	1(10)	1	QFN32
	GD32F150C4T6	72	16K	4K	up to 39	1	5	1		1	2	1	1	1	1	1	1	1	1	1	1	1(10)	1	LQFP48
	GD32F150C6T6	72	32K	6K	up to 39	1	5	1		1	2	1	2	1	1	1	1	1	1	1	1	1(10)	1	LQFP48
	GD32F150C8T6	72	64K	8K	up to 39	1	5	1		1	2	1	2	2	2	1	1	1	1	1	1	1(10)	1	LQFP48
	GD32F150R4T6	72	16K	4K	up to 55	1	5	1		1	2	1	1	1	1	1	1	1	1	1	1	1(16)	1	LQFP64
	GD32F150R6T6	72	32K	6K	up to 55	1	5	1		1	2	1	2	1	1	1	1	1	1	1	1	1(16)	1	LQFP64
	GD32F150R8T6	72	64K	8K	up to 55	1	5	1		1	2	1	2	2	2	1	1	1	1	1	1	1(16)	1	LQFP64
	Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer							Connectivity							Analog Interface		Package	
				Flash	SRAM		GPTM (32bit)	GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART	I <sup>2</sup> C	SPI	CAN 2.0B	I <sup>2</sup> S	LCD	OP-amp	Comp	12bit ADC Units (CHs)		12bit DAC Units
GD32F170	GD32F170T4U6	48	16K	4K	up to 28	1	4	1			1	2	1	1	1	2						1(10)		QFN36
	GD32F170T6U6	48	32K	4K	up to 28	1	4	1			1	2	1	2	1	2						1(10)		QFN36
	GD32F170T8U6	48	64K	8K	up to 28	1	5	1			1	2	1	2	3	3	2					1(10)		QFN36
	GD32F170C4T6	48	16K	4K	up to 39	1	4	1			1	2	1	1	1	1	2					1(10)		LQFP48
	GD32F170C6T6	48	32K	4K	up to 39	1	4	1			1	2	1	2	1	1	2					1(10)		LQFP48
	GD32F170C8T6	48	64K	8K	up to 39	1	5	1			1	2	1	2	3	3	2					1(10)		LQFP48
	GD32F170R8T6	48	64K	8K	up to 55	1	5	1			1	2	1	2	3	3	2					1(16)		LQFP64
GD32F190	GD32F190T4U6	72	16K	4K	up to 28	1	5	1		1	2	1	1	1	1	2	1		2	2		1(10)	2	QFN36
	GD32F190T6U6	72	32K	6K	up to 28	1	5	1		1	2	1	2	1	2	1			2	2		1(10)	2	QFN36
	GD32F190T8U6	72	64K	8K	up to 28	1	5	1		1	2	1	2	3	3	2			2	2		1(10)	2	QFN36
	GD32F190C4T6	72	16K	4K	up to 39	1	5	1		1	2	1	1	1	1	2	1	4x18	2	2		1(10)	2	LQFP48
	GD32F190C6T6	72	32K	6K	up to 39	1	5	1		1	2	1	2	1	1	2	1	4x18	2	2		1(10)	2	LQFP48
	GD32F190C8T6	72	64K	8K	up to 39	1	5	1		1	2	1	2	3	3	2	2	4x18	2	2		1(10)	2	LQFP48
	GD32F190R4T6	72	16K	4K	up to 55	1	5	1		1	2	1	1	1	1	2	1	8x32	3	2		1(16)	2	LQFP64
	GD32F190R6T6	72	32K	6K	up to 55	1	5	1		1	2	1	2	1	1	2	1	8x32	3	2		1(16)	2	LQFP64
	GD32F190R8T6	72	64K	8K	up to 55	1	5	1		1	2	1	2	3	3	2	2	8x32	3	2		1(16)	2	LQFP64

# GD32F1 series of 32-bit ARM<sup>®</sup> Cortex<sup>®</sup>-M3 MCUs Selection Guide



Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity						EXMC	Analog Interface		Package									
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic 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	Ether-net		12bit ADC Units (Chs)	12bit DAC Units							
GD32F103	GD32F103T4U6	108	16K	6K	up to 26	2	1		1	2	1	2	1	1	1	1											2(10)		QFN36	
	GD32F103T6U6	108	32K	10K	up to 26	2	1		1	2	1	2	1	1	1	1												2(10)		QFN36
	GD32F103T8U6	108	64K	20K	up to 26	3	1		1	2	1	2	1	1	1	1												2(10)		QFN36
	GD32F103TBU6	108	128K	20K	up to 26	3	1		1	2	1	2	1	1	1	1												2(10)		QFN36
	GD32F103C4T6	108	16K	6K	up to 37	2	1		1	2	1	2	1	1	1	1												2(10)		LQFP48
	GD32F103C6T6	108	32K	10K	up to 37	2	1		1	2	1	2	1	1	1	1												2(10)		LQFP48
	GD32F103C8T6	108	64K	20K	up to 37	3	1		1	2	1	3	2	2	1	1												2(10)		LQFP48
	GD32F103CBT6	108	128K	20K	up to 37	3	1		1	2	1	3	2	2	1	1												2(10)		LQFP48
	GD32F103R4T6	108	16K	6K	up to 51	2	1		1	2	1	2	1	1	1	1												2(16)		LQFP64
	GD32F103R6T6	108	32K	10K	up to 51	2	1		1	2	1	2	1	1	1	1												2(16)		LQFP64
	GD32F103R8T6	108	64K	20K	up to 51	3	1		1	2	1	3	2	2	1	1												2(16)		LQFP64
	GD32F103RBT6	108	128K	20K	up to 51	3	1		1	2	1	3	2	2	1	1												2(16)		LQFP64
	GD32F103RCT6	108	256K	48K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1									3(16)	2	LQFP64	
	GD32F103RDT6	108	384K	64K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1									3(16)	2	LQFP64	
	GD32F103RET6	108	512K	64K	up to 51	4	2	2	1	2	1	5	2	3	1	1	2	1									3(16)	2	LQFP64	
	GD32F103RFT6	108	768K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1									3(16)	2	LQFP64	
	GD32F103RGT6	108	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1									3(16)	2	LQFP64	
	GD32F103RIT6	108	2048K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1									3(16)	2	LQFP64	
	GD32F103RKT6	108	3072K	96K	up to 51	10	2	2	1	2	1	5	2	3	1	1	2	1									3(16)	2	LQFP64	
	GD32F103V8T6	108	64K	20K	up to 80	3	1		1	2	1	3	2	2	1	1											•	2(16)		LQFP100
	GD32F103VBT6	108	128K	20K	up to 80	3	1		1	2	1	3	2	2	1	1											•	2(16)		LQFP100
	GD32F103VCT6	108	256K	48K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1								•	3(16)	2	LQFP100	
	GD32F103VDT6	108	384K	64K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1								•	3(16)	2	LQFP100	
	GD32F103VET6	108	512K	64K	up to 80	4	2	2	1	2	1	5	2	3	1	1	2	1								•	3(16)	2	LQFP100	
	GD32F103VFT6	108	768K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1								•	3(16)	2	LQFP100	
	GD32F103VGT6	108	1024K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1								•	3(16)	2	LQFP100	
	GD32F103VIT6	108	2048K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1								•	3(16)	2	LQFP100	
	GD32F103VKT6	108	3072K	96K	up to 80	10	2	2	1	2	1	5	2	3	1	1	2	1								•	3(16)	2	LQFP100	
	GD32F103ZCT6	108	256K	48K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1								•	3(21)	2	LQFP144	
	GD32F103ZDT6	108	384K	64K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1								•	3(21)	2	LQFP144	
	GD32F103ZET6	108	512K	64K	up to 112	4	2	2	1	2	1	5	2	3	1	1	2	1								•	3(21)	2	LQFP144	
GD32F103ZFT6	108	768K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1								•	3(21)	2	LQFP144		
GD32F103ZGT6	108	1024K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1								•	3(21)	2	LQFP144		
GD32F103ZIT6	108	2048K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1								•	3(21)	2	LQFP144		
GD32F103ZKT6	108	3072K	96K	up to 112	10	2	2	1	2	1	5	2	3	1	1	2	1								•	3(21)	2	LQFP144		

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



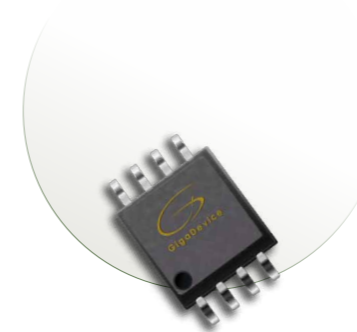
Series	Part No.	Max Speed (MHz)	Memory (Bytes)		I/O	Timer						Connectivity						EXMC	Analog Interface		Package		
			Flash	SRAM		GPTM (16bit)	Advanced TM (16bit)	Basic TM (16bit)	SysTick (24bit)	WDG	RTC	USART (UART)	I <sup>2</sup> C	SPI	CAN 2.0B	USB 2.0 FS	I <sup>2</sup> S		SDIO	Ether-net		12bit ADC Units (Chs)	12bit DAC Units
GD32F105	GD32F105R8T6	108	64K	64K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RBT6	108	128K	64K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RCT6	108	256K	96K	up to 51	4	1	2	1	2	1	5	2	3	2	OTG	2				2(16)	2	LQFP64
	GD32F105RDT6	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
	GD32F105RFT6	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
	GD32F105VBT6	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	GD32F107RBT6	108	128K	96K	up to 51	4	1	2	1	2	1	5	1	3	2	OTG	2			•	2(16)	2	LQFP64
	GD32F107RCT6	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
	GD32F107RFT6	108	768K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP64
	GD32F107RGT6	108	1024K	96K	up to 51	10	2	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP64
	GD32F107VBT6	108	128K	96K	up to 80	4	1	2	1	2	1	5	1	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F107VCT6	108	256K	96K	up to 80	4	1	2	1	2	1	5	1	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F107VDT6	108	384K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F107VET6	108	512K	96K	up to 80	4	2	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	GD32F107VFT6	108	768K	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 80	10	2	2	1	2	1	5	2	3	2	OTG	2			•	2(16)	2	LQFP100
	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	





# SPI NOR Flash

## GD SPI NOR Flash Features



- ◆ **Single Power Supply Voltage** - Voltage range: 2.7V~3.6V
- ◆ **High Speed Clock Frequency** - Maximum 133MHz for fast read with 30pF load\* - Dual I/O Data transfer up to 266Mbits/s - Quad I/O Data transfer up to 532Mbits/s - Continuous Read With 8/16/32/64-Byte Wrap
- ◆ **Flexible Memory Architecture** - Sector Size: 4K Bytes - Block Size: 32/64K Bytes

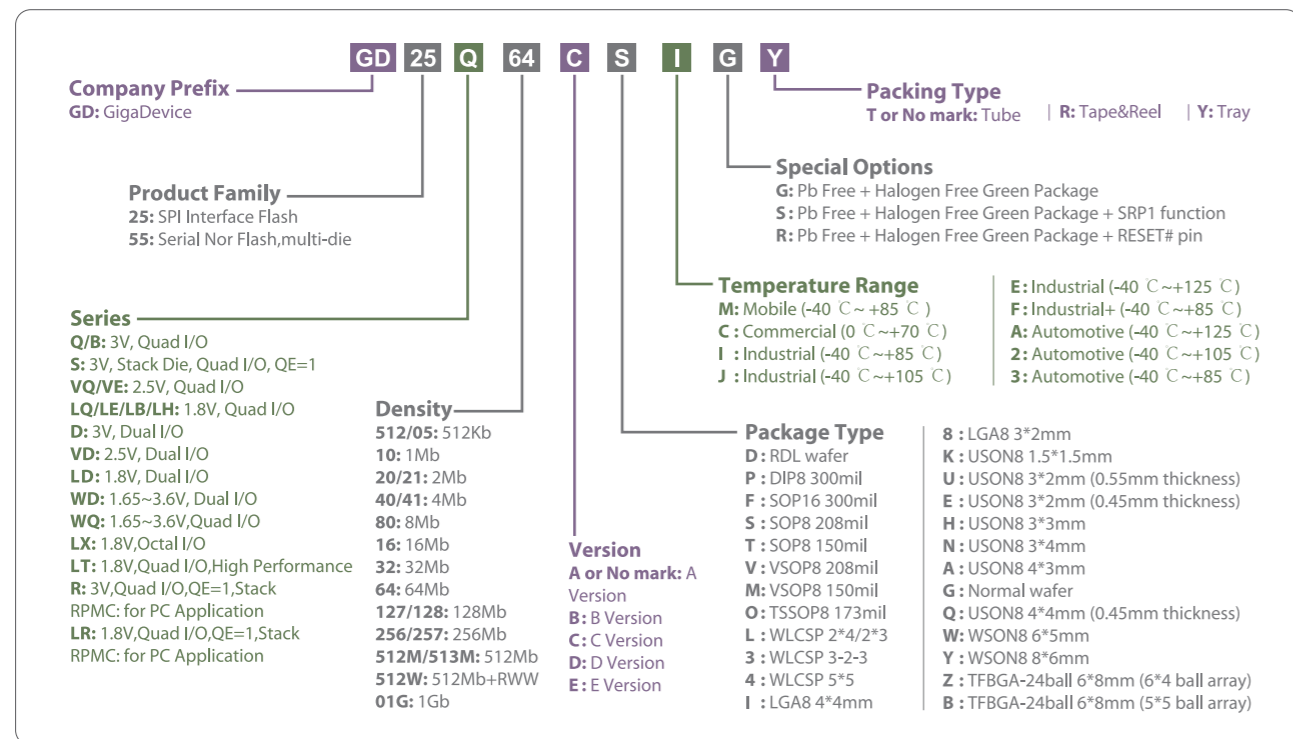
- ◆ **Single Power Supply Voltage** - Voltage range: 2.3V~3.6V
- ◆ **High Speed Clock Frequency** - Maximum 104MHz for fast read with 30pF load\* - Dual I/O Data transfer up to 208Mbits/s - Quad I/O Data transfer up to 416Mbits/s - Continuous Read With 8/16/32/64-Byte Wrap
- ◆ **Flexible Memory Architecture**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

- ◆ **Single Power Supply Voltage** - Voltage range: 1.65V~2.0V
- ◆ **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 - 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

- ◆ **Single Power Supply Voltage** - Voltage range: 1.65V~3.6V
- ◆ **High Speed Clock Frequency** - 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

\* 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						1.65V-3.6V			
	GD25Q	GD25B	GD25R	GD25D	GD25VQ	GD25VE	GD25LX	GD25LT	GD25LR	GD25LQ	GD25LB	GD25LH	GD25LE	GD25LD	GD25WQ	GD25WD
Part No.	xxC xxD xxE	xxC xxD xxE	xxC xxD xxE	xxD xxE	xxC xxE	xxC xxE	xxE	xxE	xxC xxD	xxC xxD	xxC xxD	xxC xxD	xxC xxD	xxC	xxE	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)	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Octal Output (1-1-8)							•									
Octal I/O (1-8-8)							•									
QPI (4-4-4)							•									
OPI (8-8-8)							•									
HOLD# Pin	•				•	•				•	•	•	•			•
HW Reset (RESET# Pin)	*			•	*	*										*
SW Reset	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
HW Write Protection (W# Pin)	•			•	•	•	•	•	•	•	•	•	•	•	•	•
SW Write Protection	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Enhanced Block Protection	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Volatile & Non-volatile Status Register Bit	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Output Driver Strength	*	*	*	*	*	*			*							*
Security Registers with OTP Locks	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
SFDP Register	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
DTR							•	•								

\* This feature is supported by part of the family







# SPI NAND Flash



GD SPI NAND Flash Features



- ◆ **Power Supply Voltage:** 2.7V~3.6V
- ◆ **High Speed Clock Frequency:**
  - Up to 120MHz for fast read with 30pF load
  - Quad I/O Data transfer up to 480Mbit/s
- ◆ **Flexible Memory Architecture:**
  - 2048Byte page for read and program
  - 128KByte per block for erase
- ◆ **Enhanced Access Performance:**
  - 2KByte cache for fast random read
  - Cache Read and Cache Program
- ◆ **Advanced Feature for SPI NAND:**
  - Internal ECC algorithm
  - Internal data move by page with ECC
  - Promised good block-0 with ECC

- ◆ **Power Supply Voltage:** 1.7V~2.0V
- ◆ **High Speed Clock Frequency:**
  - Up to 120MHz for fast read with 30pF load
  - Quad I/O Data transfer up to 480Mbit/s
- ◆ **Flexible Memory Architecture:**
  - 2048Byte page for read and program
  - 128KByte per block for erase
- ◆ **Enhanced Access Performance:**
  - 2KByte cache for fast random read
  - Cache Read and Cache Program
- ◆ **Advanced Feature for SPI NAND:**
  - Internal ECC algorithm
  - Internal data move by page with ECC
  - Promised good block-0 with ECC

# GD SPI NAND Flash Product List

## 3.3V

Part No.	Density	Page Size	Package
GD5F1GQ4UxYxG	1Gb	2KB+128B	WSON8 8*6mm
GD5F1GQ4UxYxH	1Gb	2KB+64B	WSON8 8*6mm
GD5F2GQ4Ux9xG	2Gb	2KB+128B	LGA8 8*6mm
GD5F2GQ4Ux9xH	2Gb	2KB+64B	LGA8 8*6mm
GD5F2GQ5UxYxG	2Gb	2KB+128B	WSON8 8*6mm
GD5F2GQ5UxYxH	2Gb	2KB+64B	WSON8 8*6mm
GD5F4GQ6Ux9xG	4Gb	2KB+128B	LGA8 8*6mm
GD5F4GQ6Ux9xH	4Gb	2KB+64B	LGA8 8*6mm

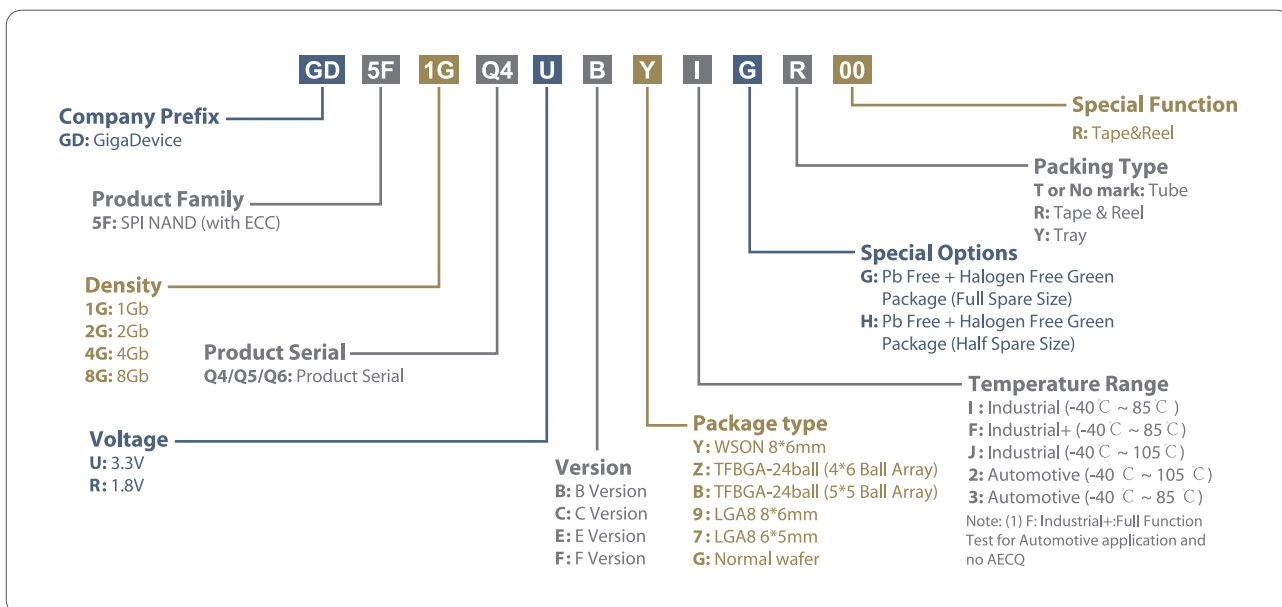
Note: For other Part Number options, please contact GigaDevice sales.

## 1.8V

Part No.	Density	Page Size	Package
GD5F1GQ4R9x9G	1Gb	2KB+128B	LGA8 8*6mm
GD5F1GQ4R9x9H	1Gb	2KB+64B	LGA8 8*6mm
GD5F2GQ4R9x9G	2Gb	2KB+128B	LGA8 8*6mm
GD5F2GQ4R9x9H	2Gb	2KB+64B	LGA8 8*6mm
GD5F2GQ5R9xYxG	2Gb	2KB+128B	WSON8 8*6mm
GD5F2GQ5R9xYxH	2Gb	2KB+64B	WSON8 8*6mm
GD5F4GQ6R9x9G	4Gb	2KB+128B	LGA8 8*6mm
GD5F4GQ6R9x9H	4Gb	2KB+64B	LGA8 8*6mm

Note: For other Part Number options, please contact GigaDevice sales.

# GD SPI NAND Flash Part Number Definition



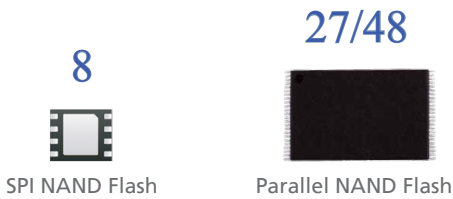




Advantages – Small Size

Reduce Package cost

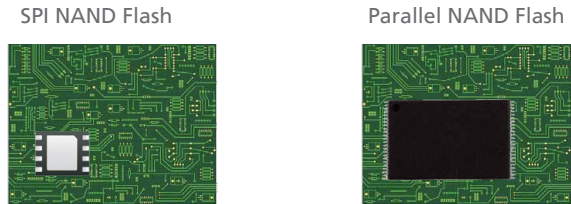
Advantages – Less Pin



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

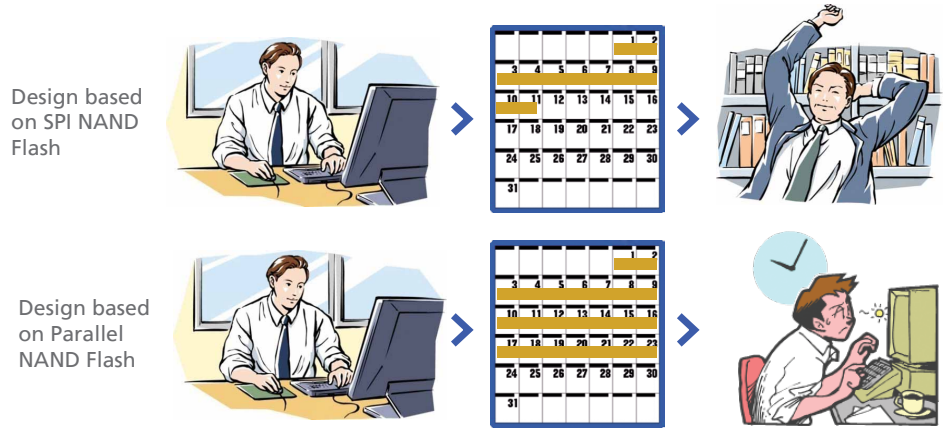
Advantages – PCB cost

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.



# Parallel NAND Flash

## GD Parallel NAND Flash Features

### 3.3V

- ◆ Power Supply: 2.7V ~ 3.6V
- ◆ Density: 1Gb / 2Gb
- ◆ Page Size: 2048Byte + 128Byte / 2048Byte + 64Byte
- ◆ Flash Array to Register Time: 25us
- ◆ IO Read Performance: 25ns
- ◆ Bus Width: x8 or x16 options
- ◆ Temperature Range: -40°C to 85°C / -40°C to 105°C
- ◆ ONFI 1.0 Compatible

### 1.8V

- ◆ Power Supply: 1.7V ~ 1.95V
- ◆ Density: 1Gb / 2Gb
- ◆ Page Size: 2048Byte + 128Byte / 2048Byte + 64Byte
- ◆ Flash Array to Register Time: 25us
- ◆ IO Read Performance: 45ns
- ◆ Bus Width: x8 or x16 options
- ◆ Temperature Range: -40°C to 85°C / -40°C to 105°C
- ◆ ONFI 1.0 Compatible

## GD Parallel NAND Flash Product List

### 3.3V

Part No.	Density	Page Size	ECC Requirement	Package
GD9FU1GxF2A	1Gb	2KB+128B	4bit/512B	TSOP48 12mmx20mm
GD9FU1GxF3A	1Gb	2KB+64B	4bit/512B	TSOP48 12mmx20mm
GD9FU2GxF2A	2Gb	2KB+128B	4bit/512B	TSOP48 12mmx20mm
GD9FU2GxF3A	2Gb	2KB+64B	4bit/512B	TSOP48 12mmx20mm
GD9AU2GxF3A*	2Gb	2KB+64B	Internal 4bit/512B	TSOP48 12mmx20mm

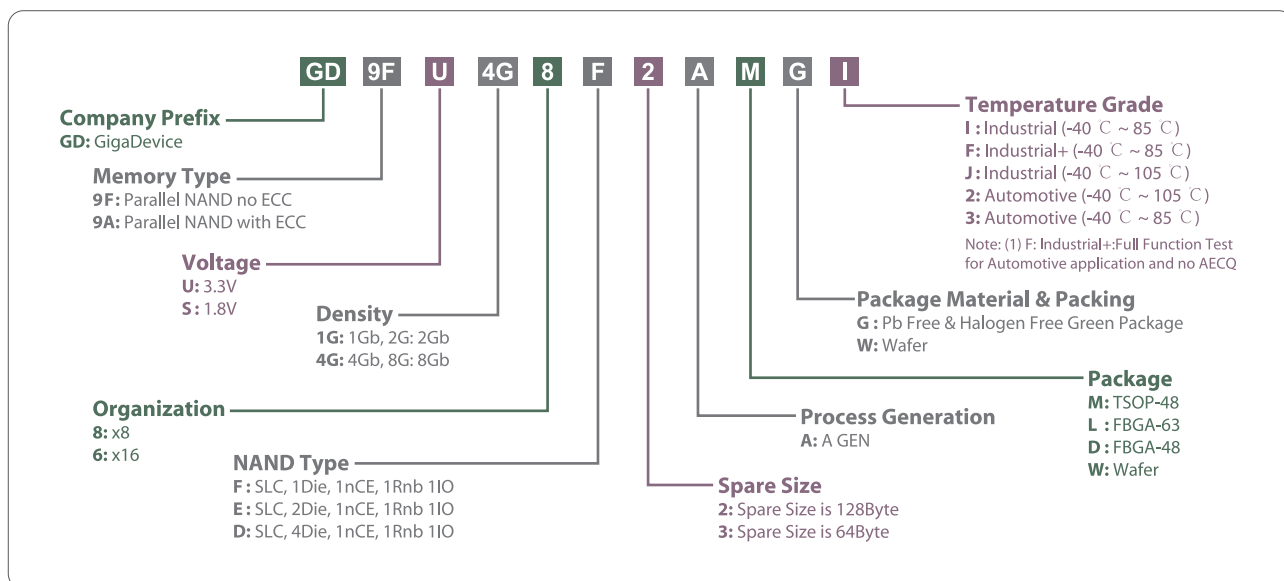
\* Note: The device has internal 4bit/512B ECC, doesn't need host ECC.

### 1.8V


Part No.	Density	Page Size	ECC Requirement	Package
GD9FS1GxF2A	1Gb	2KB+128B	4bit/512B	TSOP48 12mmx20mm
GD9FS1GxF3A	1Gb	2KB+64B	4bit/512B	TSOP48 12mmx20mm
GD9FS2GxF2A	2Gb	2KB+128B	4bit/512B	TSOP48 12mmx20mm
GD9FS2GxF3A	2Gb	2KB+64B	4bit/512B	TSOP48 12mmx20mm
GD9AS2GxF3A*	2Gb	2KB+64B	Internal 4bit/512B	TSOP48 12mmx20mm


\* Note: The device has internal 4bit/512B ECC, doesn't need host ECC.

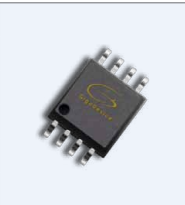
## GD Parallel NAND Flash Part Number Definition

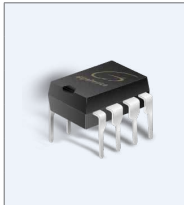



# Flash Package Options

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

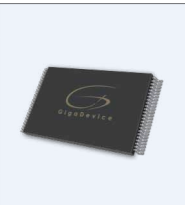
F		SOP16 300mil	
		Length(Normal)	10.30
		Width(Normal)	10.35
		Thickness(Max)	2.75
		Pitch(Normal)	1.27
		mm	

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

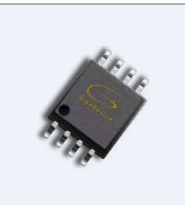
P		DIP8 300mil	
		Length(Normal)	9.32
		Width(Normal)	7.94
		Thickness(Max)	3.50
		Pitch(Normal)	2.54
		mm	


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


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

M		TSOP48	
		Length(Normal)	12.0
		Width(Normal)	20.0
		Thickness(Max)	1.20
		Pitch(Normal)	0.50
		mm	

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

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


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

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


9		LGA8 8*6mm	
		Length(Normal)	8.00
		Width(Normal)	6.00
		Thickness(Max)	0.80
		Pitch(Normal)	1.27
		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 always verify your selection with the product data sheet.


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


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

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

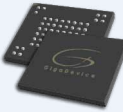
H		<b>USON8 3*3mm</b>	
		Length(Normal)	3.00
		Width(Normal)	3.00
		Thickness(Max)	0.60
		Pitch(Normal)	0.50
			mm

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

L		<b>FBGA63</b>	
		Length(Normal)	9.00
		Width(Normal)	11.0
		Thickness(Max)	1.00
		Pitch(Normal)	0.80
			mm

## GigaDevice Semiconductor (Beijing) Inc.

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### Beijing Headquarter

Building No.8, IC Park, No.9 Fenghao East Road,  
Haidian, Beijing, China  
Tel: +86-10-82881666  
Fax: +86-10-82881668  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

A12, USTB Techart Plaza, Xueyuan Road 30,  
Haidian District, Beijing, China  
Tel: +86-10-82881666  
Fax: +86-10-82881668  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

### Shanghai Office

Room 603, Tianshan Road 18, Zhaoyi Science Zone,  
Shanghai, China  
Tel: +86-21-32567770  
Fax: +86-21-32567770-803  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

Room 1515, 5F, Building 1, Guoshoujing Road 498,  
Zhangjiang High-Tech Park, Pudong New Area,  
Shanghai, China  
Tel: +86-21-50395591  
Fax: +86-21-50395591-803  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

### Shenzhen Office

32A2-B, Tower A, NEO Building 6011 Shennan  
Avenue Shenzhen 518040, China  
Tel: +86-775-83438655  
Fax: +86-775-83438655-801  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

### Hefei Office

Qinghua Road 368, Economic & Technological  
Development Area, Hefei, Anhui, China  
Tel: +86-551-68999899  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

### Xi'an Office

23F, Building East, ASCENDAS, Tian Gu 7th Road 88,  
Hi-tech Industrial Development Zone,  
Xi'an, China  
Tel: +86-29-88858591  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

### Taiwan Office

6F.-5, No.171, Songde Rd., Xinyi Dist.,  
Taipei City 110,  
Taiwan (R.O.C.)  
Tel: +886-2-27277210  
Fax: +886-2-27277216  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

### USA Office

Gigadevice Semiconductor Inc.  
100 Century Center Ct., Suite 120  
San Jose, CA 95112, USA  
Tel: 408-855-8336  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

### Korea Office

#608-2, A-TechnoPark, 697, Pangyo-ro,  
Bundang-gu, Seongnam-si,  
Gyeonggi-do Korea  
Tel: 82-31-701-2408  
E-mail: [Robert@gigadevice.com](mailto:Robert@gigadevice.com)

### Japan Office

DSM Shin-Yokohama building 2F,  
2-6-3 Shin-Yokohama, Kohoku,  
Yokohama 222-0033  
Tel: +81-45-534-4102  
Fax: +81-45-534-4103  
E-mail: [info@gigadevice.com](mailto:info@gigadevice.com)

### UK Office

GigaDevice Semiconductor Europe Ltd  
Innovation House  
Molly Millars Close  
Wokingham  
Berkshire  
UK  
RG41 2RX  
Tel: +44 (0) 7585 707735

### Singapore Office

9 Temasek Boulevard  
Suntec Tower 2., #09-01  
Singapore 038988  
Tel: +65 97654231

