

BSTMIN10M Series CPLD Product Brochure Ver1.2

Product Overview

BSTMIN10M series products are "instantaneous" function realization, non-volatile CPLD, using 55nm 10-layer metal embedded Flash process, the chip programmable resource types are logic unit LC, M9K, DSP, PLL, ADC. The maximum operating frequency is 416Mhz. Compared with other CPLDs, this series of CPLDs has more resource types and higher performance. The internal resources of BSTMIN10M CPLD products are shown in the following table:

Table 1 -1Internal resources of BSTMIN10M CPLD product

Device Model	Number of logical cells (LC) (K)	M9K (Kb)	UFM (Kb)	DSP	PLL	MAX User IO	LVDS			ADC
							Dedicated transmitter	Simulation transmitter	Dedicated receiver	
BSTMIN10M04	4	289	1248	20	1	130	15	114	114	1
BSTMIN10M08	8	378	1376	24	1	130	15	116	116	1
BSTMIN10M50	50	1638	5888	144	4	360	24	171	171	2

Table 1 -2Package and available IO information

Device Model	Packaging information				
	Encapsulation	CQFP144	QFP144	BGA169	BGA484

	Ball diameter	—	—	0.5mm	0.6mm
Pins	Pin spacing	0.5mm	0.5mm	0.8mm	1.0mm
	Dimensions	22×22mm	22×22mm	11×11mm	23×23mm
BSTMIN10M04		101	101	130	—
BSTMIN10M08		101	101	130	—
BSTMIN10M50		—	—	—	360

Product features

- Devices with core architectures that have single-boot self-configuration capabilities
- "Instantaneous" function implementation, non-volatile structure
- Self-configuring dual images stored internally
- Comprehensive design protection features
- Integrated ADC with up to 9 inputs, 9-bit SAR function with temperature sensing
- Secure on-chip configuration in less than 10 ms
- A single device that integrates RAM, flash, digital signal processing (DSP), ADC, phase-locked loop (PLL), and I/O
- Flexible power supply solutions
- Sleep mode—significantly reduces standby power consumption and restarts in less than 1 ms
- Hot-swap support

Functional Block Diagram

Figure 1 is the architecture block diagram of the BSTMIN10M CPLD product chip. The chip architecture adopts a multi-array matrix, and the architecture components include: logic array module LAB with 4-input lookup table and single register logic cell (LC), general I/O, user flash memory module (UFM), embedded RAM (M9K), embedded multiplier (DSP), ADC and PLL, etc.

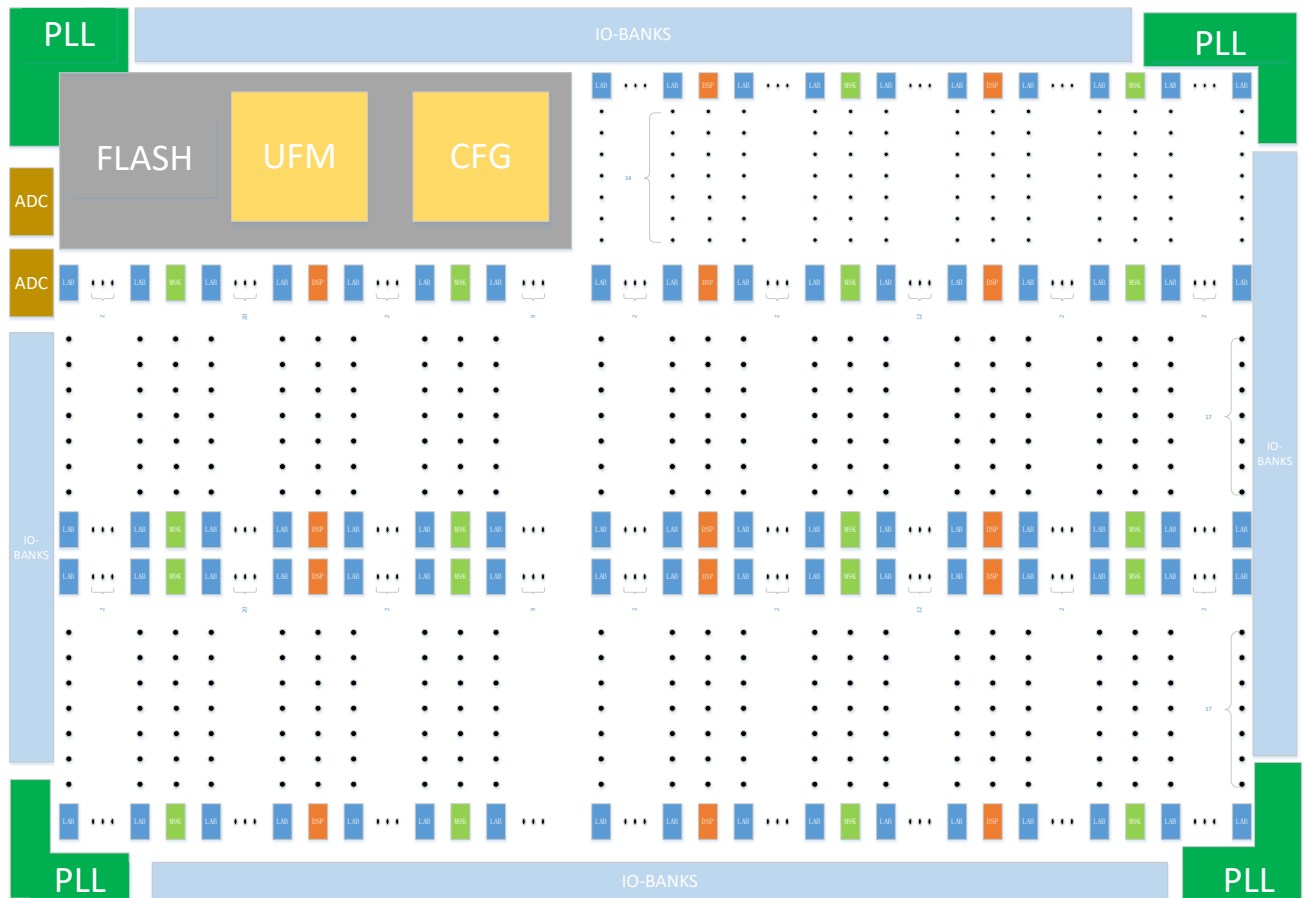


Figure 1 Product 1Block Diagram

Ordering Information

Table 2 Product ordering information

Product Model	Package	Packaging materials	Lead material	Package Type	Dimensions (mm)	Weight (g)	Detailed specification number	Device level
BSTMIN10M04	CQFP144	Pottery seal	Copper tinning	Airtight packaging		6.7g	Q/BST 60008-2021	Class B
BSTMIN10M04PQFP144 M3	QFP144	Plastic packaging	Copper tinning	Non-hermetic		1.32g	Q/BST 50237-2023	N1 Level

BSTMIN10M04PBGA169 M3	BGA169	Plastic packa ging	SAC305	packagi ng		0.38g	Q/BST 50236-2023	N1 Level
BSTMIN10M08PQFP144 M3	QFP144	Plastic packa ging	Copper tinning			1.32g	Q/BST 50323-2023	N1 Level
BSTMIN10M08PQFP144E	QFP144	Plastic packa ging	Copper tinning			1.32g	Q/BST 50322-2023	Military temperatu re grade
BSTMIN10M08PBGA169 M3	BGA169	Plastic packa ging	SAC305			0.38g	Q/BST 50324-2023	N1 Level
BSTMIN10M50	CBGA484	Potter y seal	SAC305				Q/BST 60009-2021	Class B
BSTMIN10M50PBGA484 M3	BGA484	Plastic packa ging	SAC305				Q/BST 50238- 202 3	N1 Level