

## ISB 28000 SERIES

0.7 micron, triple level metal HCMOS Technology. Typical delay 0.25ns for 2-input NAND gate

### GENERAL FEATURES

- Combines CB22000 Standard Cell features with ISB24K Sea Of Gates time to market
- 5V, 3.3V and mixed voltage library versions
- Embedded functions for High Density SPRAM, DPRAM, ROM and FIFO
- Video DAC (3 x 8 Bit) for graphics applications at 80 or 135 MHz
- Phase Locked Loop function for chip to chip clock management and frequency synthesis
- Broad application-specific embedded functions offering

Process Technology	Complexity	Delay (ns)	Gate Power ( $\mu$ w/Gate/MHz)	Single Output Drive (mA)	I/O Interface	Module Generators
0.7 $\mu$ m, triple level metal	18 generics - 3, 100 to 216,000 usable gates	0.25 typ. for 2-Input NAND gate ND2P	6	up to 24	TTL, CMOS, EISA, ISA, MCA, SCSI	SPRAM 8 K bits max DPRAM 4 K bits max ROM 16 Kbit max

### EMBEDDED FUNCTIONS

MEGACELLS				MEGAFUNCTIONS		
SPRAM-E	DPRAM	ROM	FIFO-E	VIDEODAC	FREQ. SYNTHESIS PLL	CLOCK MULTIPLIER PLL
80 Kbit max capacity	64 Kbit max capacity	64 Kbit max capacity	64 Kbit max capacity	Triple DAC with 8 bit resolution	Input Freq. 1 - 4 MHz	Input Freq. 4 MHz
8 to 16 K Word 1 to 80 bit	16 to 8 K Word 1 to 80 bit	32 to 8 K Word 1 to 32 bit	16 to 8 K Word 1 to 80 bit	Comparators on outputs	Output Freq. 6 to 32 MHz	Output Freq. 16.25 to 136 MHz
Access Time (1k x 16b) 4.5 ns Typ.	Access Time (1k x 16b) 15 ns Typ.	Access Time (1k x 8b) 7 ns Typ.	Access Time (2k x 8b) 12 ns Typ.	135 MHz operation	Jitter Error + / - 0.5ns	Jitter Error + / - 1 ns
Density 27 Kbit/mm <sup>2</sup> (1k x 16b)	Density 1.9 Kbit/mm <sup>2</sup> (1k x 16b)	Density 12 Kbit/mm <sup>2</sup> (1k x 8b)	Density 1.6 Kbit/mm <sup>2</sup> (2k x 8b)			

**STANDARD PACKAGE RANGE**

Type	Package	Pins
ISB28004	PLCC PQFP TQFP	20 to 44 64 64, 80
ISB28005	PLCC PQFP TQFP	20 to 44 64 64, 80
ISB28007	SOIC PLCC PQFP TQFP	18 to 28 20 to 44 64 64, 80
ISB28013	PLCC PQFP TQFP	28 to 68 44 to 128 64 to 100
ISB28019	PLCC PQFP TQFP	28 to 84 44 to 128 64 to 100
ISB28025	PLCC PQFP TQFP	28 to 84 44 to 128 64 to 100
ISB28037	PLCC PQFP TQFP	28 to 84 44 to 128 64 to 100
ISB28046	PLCC PQFP TQFP	44 to 84 44 to 144 64 to 100
ISB28060	PLCC PQFP TQFP	44 to 84 64 to 144 80, 100, 144

Type	Package	Pins
ISB28077	BGA PLCC PQFP TQFP	256 44 to 84 64 to 208 100, 176, 144
ISB28103	BGA PLCC PQFP TQFP	256 68, 84 64 to 208 100, 176
ISB28118	BGA PLCC PQFP TQFP	256 68, 84 64 to 208 100, 144, 176
ISB28133	BGA PLCC PQFP TQFP	256 68, 84 144 to 208 144, 176
ISB29157	BGA PQFP TQFP	256 144 to 208 176
ISB28166	BGA PQFP TQFP	256, 352 144 to 208 176
ISB28203	BGA PQFP TQFP	256, 352 144 to 208 176
ISB28254	BGA PQFP	256, 352 208
ISB28288	BGA PQFP	352 144, 160, 208