

Hitachi Releases 9/18-Mbit Zero Bus Latency (ZBL) SRAMs for Communications Applications, Achieving Industry's Top-Level Operating Speed of 250 MHz

— High-speed operation and low power consumption for buffer memory and table memory use in communications equipment such as routers and switches —

Tokyo, April 11, 2002—Hitachi, Ltd. (TSE: 6501) today announced a line of Zero Bus Latency (ZBL) SRAMs as synchronous SRAMs for communications equipment such as routers and switches, and the upcoming release of a total of eight series comprising the 9-Mbit HM66WP18512/3 and HM66WP36256/7 Series, and the 18-Mbit HM66WP18100/1 and HM66WP36512/3 Series. Sample shipments will begin in April 2002 for the 9-Mbit models, and in July 2002 for the 18-Mbit models.

These new products feature an absence of dead cycles when random read and write operations are repeated, and they are compatible with Zero Bus Turnaround™ (ZBT®) SRAMs*¹ of a similar type currently on the market.

They also offer the industry's top-level operating speed of 250 MHz for this type of SRAM, together with a low operating current of 250 mA (max.) for the 9-Mbit models and 300 mA (max.) for the 18-Mbit models at 250 MHz operation, enabling low system power consumption to be achieved.

[Background]

The popularity of networks such as the Internet has brought higher communication equipment transmission speeds, with backbone line speeds now exceeding 10 Gbps. With such high-speed communications, fast memory is needed by communication equipment that carries out data routing and illegal data checking. There is thus a demand for high-speed, large-capacity, large-bit-width memory for use as buffer memory and table memory in communication equipment such as routers and switches.

Hitachi has previously been engaged in mass production of asynchronous fast SRAMs and Late-Write Synchronous SRAMs for use as secondary cache memory in servers and workstations, and has now developed a ZBL SRAMs to be released as the 9-Mbit HM66WP18512/3 and HM66WP36256/7 Series and 18-Mbit HM66WP18100/1 and HM66WP36512/3 Series.

[About these Products]

These products are synchronous SRAMs that latch address and control signals from a processor or controller into the SRAM in synchronization with the system clock. They are compatible with Zero Bus Turnaround™ (ZBT®) SRAMs, a particular feature being that no dead cycles occur when random read and write operations are repeated.

(1) High-speed operation

The use of a 0.18 μm CMOS process offering high-speed operation at a low voltage enables the 9-Mbit HM66WP18512 and HM66WP36256 and the 18-Mbit HM66WP18100 and HM66WP36512 to achieve 250 MHz operation--the industry's top level for the SRAMs featuring the absence of dead cycles. This enables faster communication equipment speeds to be attained and also ensures smooth data transmission.

PBS (Pipelined Burst SRAM) types provided with registers for input/output (HM66WP18512, HM66WP36256, HM66WP18100, and HM66WP36512) and FT (Flow Through) types provided with registers for input only (HM66WP18513, HM66WP36257, HM66WP18101, and HM66WP36513) are supported, and a standard LVTTTL*² interface is used as the input/output interface.

Large bit widths are supported, with a $\times 18$ -bit or $\times 36$ -bit configuration.

The lineup covers a range of operating frequencies, with 250 MHz, 200 MHz, and 166 MHz versions available for the 9-Mbit HM66WP18512 and HM66WP36256 and the 18-Mbit HM66WP18100 and HM66WP36512, and 133 MHz, 117 MHz, and 100MHz versions available for the 9-Mbit HM66WP18513 and HM66WP36257 and the 18-Mbit HM66WP18101 and HM66WP36513.

(2) Low power consumption

The operating current is a low 250 mA (max.) for the 9-Mbit models and 300 mA (max.) for the 18-Mbit models at 250 MHz operation, enabling low system power consumption to be achieved.

Power supply voltages of both 2.5 V and 3.3 V are supported for all series.

The packages used are a plastic 119-pin BGA (14 mm \times 22 mm) package with excellent thermal radiation characteristics, suitable for high-density mounting, and a surface-mount 100-pin LQFP (16 mm \times 22 mm). Both 9-Mbit and 18-Mbit models have the same package dimensions, and also offer pin arrangement upward compatibility that facilitates capacity upgrades.

For BGA package models, an IEEE standard test access port and boundary scan architecture (IEEE std. 1149.1-1990) are supported, enabling a compatible connection check to be conducted at the board level when module mounting is carried out.

Readers can find additional product information on Hitachi's Web site at <http://www.hitachisemiconductor.com/jp/eng/zbl>

- Notes: 1. ZBT and Zero Bus Turnaround are trademarks of Integrated Device Technology, Inc. Hitachi's ZBL SRAM products are compatible with ZBT SRAMs.
2. LVTTTL: Low Voltage Transistor-Transistor Logic. This is a low-voltage (2.5 V/3.3 V) TTL interface.

< Typical Applications >

- Communication equipment such as routers and switches
- Testers
- Industrial equipment

< Prices in Japan >(For Reference)

Capacity	Product Number	Sample Price (Yen)	Bit Configuration	Operating Frequency	Package
9 Mbits	HM66WP18512FP-40	2,700	×18 bits	250 MHz	100-pin LQFP
	HM66WP18512BP-40	2,750		119-pin BGA	
	HM66WP18513 FP-65	2,400		133 MHz	100-pin LQFP
	HM66WP18513 BP-65	2,500		119-pin BGA	
	HM66WP36256 FP-40	2,750	×36 bits	250 MHz	100-pin LQFP
	HM66WP36256 BP-40	2,800		119-pin BGA	
	HM66WP36257 FP-65	2,450		133 MHz	100-pin LQFP
	HM66WP36257 BP-65	2,550		119-pin BGA	
18 Mbits	HM66WP18100 FP-40	5,400	×18 bits	250 MHz	100-pin LQFP
	HM66WP18100 BP-40	5,500		119-pin BGA	
	HM66WP18101 FP-65	4,800		133 MHz	100-pin LQFP
	HM66WP18101 BP-65	5,000		119-pin BGA	
	HM66WP36512 FP-40	5,500	×36 bits	250 MHz	100-pin LQFP
	HM66WP36512 BP-40	5,600		119-pin BGA	
	HM66WP36513 FP-65	4,900		133 MHz	100-pin LQFP
	HM66WP36513 BP-65	5,100		119-pin BGA	

< Specifications >

Item	Specifications												
Capacity	9 Mbits						18 Mbits						
Bit Configuration	×18 bits						×18 bits						
	×36 bits						×36 bits						
Product Number	HM66WP18512	HM66WP18513				HM66WP18100			HM66WP18101				
	HM66WP36256	HM66WP36257				HM66WP36512			HM66WP36513				
Function	Pipelined (PBS)			Flow Through (FT)			Pipelined (PBS)			Flow Through (FT)			
Power supply voltage	Both 2.5 V and 3.3 V						Both 2.5 V and 3.3 V						
Interface	LVTTTL						LVTTTL						
Operating frequency	166 MHz	200 MHz	250 MHz	100 MHz	117 MHz	133 MHz	166 MHz	200 MHz	250 MHz	100 MHz	117 MHz	133 MHz	
Cycle time	6.0 ns	5.0 ns	4.0 ns	10.0 ns	8.5 ns	7.5 ns	6.0 ns	5.0 ns	4.0 ns	10.0 ns	8.5 ns	7.5 ns	
Clock access time	3.5 ns	3.0 ns	2.6 ns	8.5 ns	7.5 ns	6.5 ns	3.5 ns	3.0 ns	2.6 ns	8.5 ns	7.5 ns	6.5 ns	
Setup time	1.5 ns	1.4 ns	1.2 ns	1.5 ns			1.5 ns	1.4 ns	1.2 ns	1.5 ns			
Hold time	0.5 ns	0.4 ns	0.3 ns	0.5 ns			0.5 ns	0.4 ns	0.3 ns	0.5 ns			
Operating current	200 mA	220 mA	250 mA	160 mA	180 mA	200 mA	220 mA	250 mA	300 mA	200 mA	220 mA	250 mA	
Standby current	30 mA						30 mA						
Packages	LQFP 100, BGA 119						LQFP 100, BGA 119						

Information contained in this news release is current as of the date of the press announcement, but may be subject to change without prior notice.
