

## KVR16R11S4/4HC

4GB 1Rx4 512M x 72-Bit PC3-12800

CL11 Registered w/Parity 240-Pin DIMM

### DESCRIPTION

This document describes ValueRAM's 512M x 72-bit (4GB) DDR3-1600 CL11 SDRAM (Synchronous DRAM), registered w/ parity, 1Rx4 ECC memory module, based on eighteen 512M x 4-bit FBGA components. The SPD is programmed to JEDEC standard latency DDR3-1600 timing of 11-11-11 at 1.5V. This 240-pin DIMM uses gold contact fingers. The electrical and mechanical specifications are as follows:

### FEATURES

- JEDEC standard 1.5V (1.425V ~1.575V) Power Supply
- VDDQ = 1.5V (1.425V ~ 1.575V)
- 800MHz fCK for 1600Mb/sec/pin
- 8 independent internal bank
- Programmable CAS Latency: 11, 10, 9, 8, 7, 6
- Programmable Additive Latency: 0, CL - 2, or CL - 1 clock
- 8-bit pre-fetch
- Burst Length: 8 (Interleave without any limit, sequential with starting address "000" only), 4 with tCCD = 4 which does not allow seamless read or write [either on the fly using A12 or MRS]
- Bi-directional Differential Data Strobe
- Internal(self) calibration : Internal self calibration through ZQ pin (RZQ : 240 ohm  $\pm$  1%)
- On Die Termination using ODT pin
- On-DIMM thermal sensor (Grade B)
- Average Refresh Period 7.8 $\mu$ s at lower than TCASE 85°C, 3.9 $\mu$ s at 85°C < TCASE  $\leq$  95°C
- Asynchronous Reset
- PCB : Height 1.180" (30.00mm), double sided component

### SPECIFICATIONS

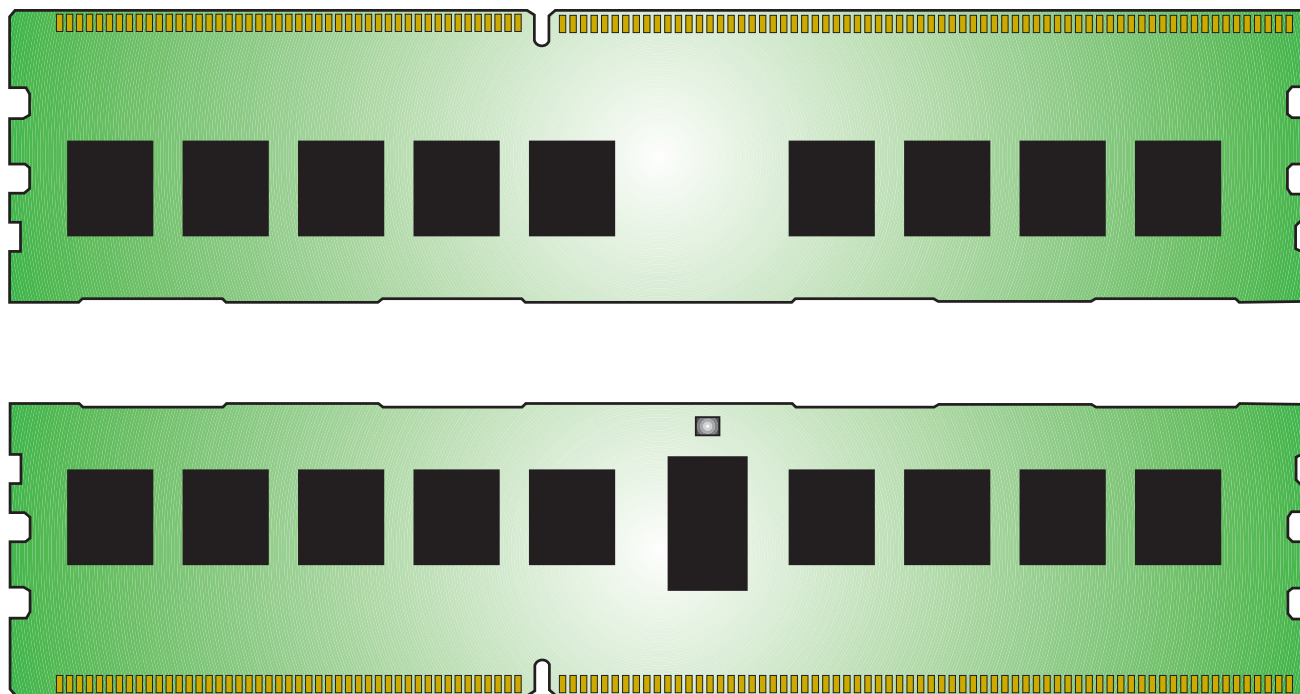
CL(IDD)	11 cycles
Row Cycle Time (tRCmin)	48.125ns (min.)
Refresh to Active/Refresh Command Time (tRFCmin)	160ns (min.)
Row Active Time (tRASmin)	35ns (min.)
Maximum Operating Power	6.141 W*
UL Rating	94 V - 0
Operating Temperature	0° C to 85° C
Storage Temperature	-55° C to +100° C

\*Power will vary depending on the SDRAM and Register/PLL used.

### SDRAM SUPPORTED

Hynix (C-Die)
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Continued >>

**MODULE DIMENSIONS:**

(units = millimeters)

