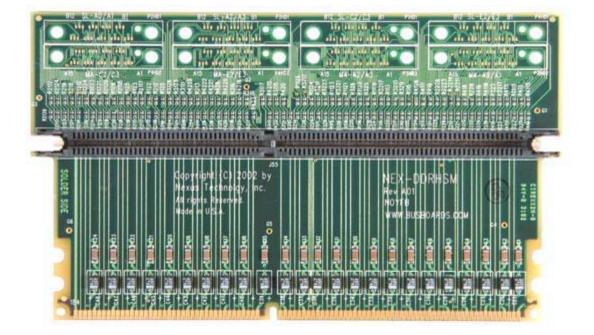


DDR 400MHz Bus Analysis Probe and Software

# NEX-DDRHSM



- Mirrored design of NEX-DDRHS product that provides the ability to simultaneously monitor two DDR sockets in a target
- Acquisition of DDR400/333/266/200, Address/Command, Read and Write data
- Quick and easy connection between the DDR bus and a Tektronix Logic Analyzer
- Extender design does not require a dedicated slot
- Selective Clocking reduces acquisition of idle cycles, saving acquisition memory
- Supports 184-pin DDR SDRAM DIMMs
- Impedance controlled, matched trace length design
- No active buffering of the DDR signals
- Accurate 8GHz timing analysis
- Simultaneous State and Timing on every channel of the TLA
- Trigger on Setup/Hold violations
- Correlation with data acquired from other acquisition modules
- Use the TLA's Extended iView capabilities to view any channel on an oscilloscope without re-probing
- Monitor an adjacent DDR socket simultaneously using an NEX-DDRHS adapter.

### **General Description**

NEX-DDRHSM allows for the acquisition of Address/Command, Read and Write data of 184-pin, unbuffered or registered DDR400/333/266/200 DIMMs.

NEX-DDRHSM is a mirror of the NEX-DDRHS product that places the DDR socket and probe footprints on the solder side of the board. Since the NEX-DDRHS places the DDR socket and probe footprints on the component side of the adapter, the NEX-DDRHS and NEX-DDRHSM can both be used in the target at the same time without mechanical interference. This provides the ability to simultaneously monitor two DDR slots in a design.

8Ghz Timing Analysis available for all DDRII signals

**Oscilloscope Connectivity** on any channel without re-probing via the TLA's Enhanced iView Analog Mux capability

**Selective Clocking** stores data when commands are present and for 13 clock cycles after Column Address Assertion. This results in fewer Idle cycles being stored in acquisition memory.

Pre-Defined Symbols for the following Command Cycles allow for easy Trigger Setup:

- Read Col Address Read
- Write Col Address Write
- Mode Register Set
- Row Address Strobe
- No Operation

- Ignore Command Data
- Burst Stop
- Refresh
- Precharge
- Precharge Select Bank

**No Dedicated Slot Required** – The logic analyzer connects above the normal DIMM height so that there is no interference with adjacent DIMMs.

### LA Support / Configuration

TLA7XX Series Logic Analyzer

- TLA Application Software V4.2 or later
- 1-2 TLA7AA4 or TLA7AB4, 136-channel acquisition modules with the 450 MHz State Clocking Option (see table below)
- 8 P6860 probes

Acquisition Type	200MHz DDR Bus	266MHz DDR Bus	333MHz DDR Bus	400MHz DDR Bus	TLA7xx4 Module Count	Merged Modules
Timing Only	Х	Х	Х	Х	1	
Read or Write	Х	Х	Х	Х	1	
Read and Write	Х	Х	Х	Х	2	Х

8 GHz MagniVu timing and Enhanced iView Analog Mux capabilities are available.

### **Timing Display**

Mag_Sample	B.375 ns	innin		mm		inin		hinnin		22.875 n
Mag_DDRCK0			وووري ووور							
Mag_Address					04204					
Mag_Command		10				10		15		X 10
Mag_Strobes	00		FF		00	X	FF		00	FF
Mag_RDDatHi	FFFFFBF		A00E2311		A0053095	X	A00271A7		A00E20A7	
Mag_RDDatLo	FFFFFFF		A00486AB		A0017904		A0048867		A00E164C	
Mag_WitMasks	00					F	-			<u>ж</u>

DDR Timing Display at 400MHz

## State Display

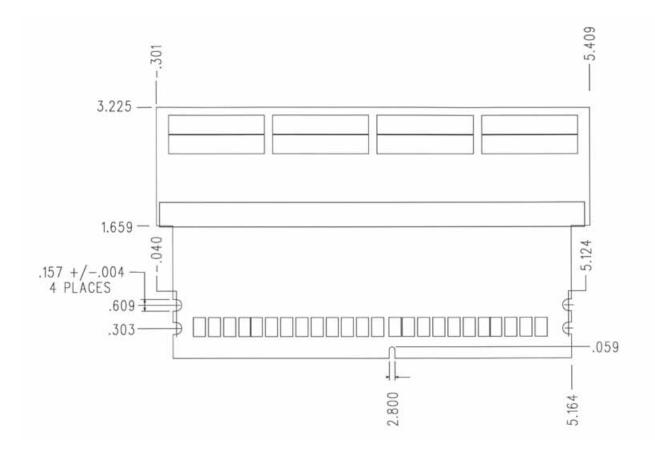
IZEERW'	1021	귀 다	2 DR255RW	1025		Deta Tine:	30ne	4				
Sample	OOR DEERN Address	OCH 266RN Rd4OatHi	ODR 266RH RdADatLo	CON 266R.W RdBOatH1	DOM 266RN RdBDatLo	DOR 266RW WrADatH I	DDR 266RW WrADatto	00H286RW Wr6DatH1	00R264RW W/BDatL0		UDR26GRV Strobes	Tisestamp 🔺
352	19060									ACTY - ROW ADDRESS STROBE (SID-)	11	112.500 ms
955 957	180AC			2C83E808	E394F50E					READ - COL ADDR READ (SO+)	11	22,500 ns 15,000 ns
958		61075058	E22061E8	16527A16	326E00C3					READ DATA	FF.	7,500 Hs
959		82691626	74166879	DE84300C	50F1F60A					READ DATA	77	7,500 ms
960		330CE086	58125288	015CED12	48E80EE4					READ DATA	**	7.500 ms
961		882£8656	ESFF88E8	DAPCOULE.						READ DATA	FF.	7.500 ma
980	19060			Second.					111111111	ACTV - ROM WOORESS STREET (SD-)	FF	142,500 ns
983	180AC		********						20010000	READ - COL ADOR READ (SD-4)	÷÷	22,500 mi
985		*******		2C83E888	E394F50E					READ DATA	00	15,000 ms
386		61075DF8	E22061E8	16527416	326E00C3					READ DATA	FF.	7.500 mz
987		32691626	74166879	0EB4300C	50F1F60A					READ DATA	÷.	7,500 ns
988		300CE086	581252E8	015CBD12	48E80EB4			********		READ DATA	. FF	7.500 ms
989		382£8656	ESFFERES							READ DATA	- FE	7,500 HE
1010	10062						********	+++++++++++++++++++++++++++++++++++++++		ACTV - ROW ADDRESS STROBE (SO-)	FE	157.500 His
1013	10030		sameses.							READ - COL NOOR READ (SO)	55	22,500 ms
1015		20372207	30532223	F\$7408.88	047449EC					READ DATA	00	15.000 ns
1016		007AE851	50C35859	DBA8ECC9	2806(280			*******		READ DATA	EE.	7.500 ns
1017		59FB7508	ASECFE74	7501A8EC	F87401A8					READ DATA	FF	7.500 ms
1019		99E85150 C933F875	C35859FB 08480E74	49ECC933	090228000					READ DATA READ DATA	FF.	7.500 hs 7.500 hs
1020	10000	Cassiers	USABUE/4							ACTV - ROW ADDRESS STROBE (50-0	CF.	2.500 mm
1023	1007A							al state in the second		WRITE - COL ACCR MEITE (SOL)	BF	22.500 ms
1024	TRADUCT A				*******	00009008	01040300	15530100	00084101	WATTE DATA	00	7.500 nt
1025						0E00900F	01040300	15680E00	00084101	WRITTE DATA	CC .	7,500 ms
1076	2742743	202012	and a state	"walion to be		01009005	01040700	15680100	00084101	WRITE DATA	00	7.500 ns
1027						0E00900F	01040300	15680200	00084101	WRITE DATA	00	7,500 ms
1074	10062	********	anterest.	one and the second		STREET.	STREATE.	********		ACTV - ROW ADDRESS STADDE (SD-)	11	252.500 ms
1077	1004C							********		READ - COL ADOR READ (SON)	##	22,500 Hs
1079	********	*******	*******	£243EF20	00800375				*******	READ DATA	00	15,000 nr
1080		BAECOBCC	BASOCREA	D4820274	01A803B4		*******	+		READ DATA	FF	7,500 HE
1081		SFC42600	1AE8C358	COBA0072	E8FA5250					READ DATA	12	7,500 mt
1082		F80069E8	EE208003	C486ACE3	-8A<3585A					READ DATA	FF	7,500 ns
1083	********	01300775	03C4FA01			*******		*******		SEAD DATA	22	7.500 ms
1084	10000	*******						*******		ACTV - ROW ADDRESS STROBE (SD-)	CF	7,500 ms
1087	1007A	*******	*******		*******			*******		WRITE - COL ACON WRITE (SO-)	117	22.500 nm
1088	1007A					Transferrate.				WRITE - COL ADDR NRITE (SON)	00	7.500 Hs
	00014		*******		*******	0E00400#	ADCOAOCO	15680100	00084170	WAITE DATA	00	
1089	3007A					anonnos	01040100	30000000	000 04460	WRITE - COL ADDR WRITE (SO-0)	00	7,500 ms
1090	0.00000000			2000000000	*******	0E000F00F	01040100	15680E00 15680E00	00074101 000941F0	WRITE DATA	00	7 500 00
1090						0E00010E	01040400	15680100	00094170	WRITE DATA	00	7,500 ns
1092							01040400		000941F0	WRITE DATA	00	7.500 ns

DDR State Display

Sample	DDRHSMRW Address	DDRHSMRW RDDatHi	DDRHSMRW RDDatLo	DDRHSMRW WRDatHi	DDRHSMRW WRDatLo	DDRHSMRW Mnemonics
	00000	00000000	00000000	00000000	00000000	Normal Operation
	00000	00000000	00000000	00000000	00000000	Latency = Reserved
	00000	00000000	00000000	00000000	00000000	Burst Type = Sequential
	00000	00000000	00000000	00000000	00000000	Burst Length = Reserved
7534	04000	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	MRS - MODE REGISTER SET (SO~)
202201000	04000	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	Reserved
7535	00100	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	MRS - MODE REGISTER SET (SO~)
	00100	FFFFFBF	FFFFFFFF	FFFFFFBF	FFFFFFFF	Normal MRS
	00100	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFFF	Normal Operation / Reset DLL
	00100	FFFFFBF	FFFFFFFF	FFFFFBF	FFFFFFFF	Latency = Reserved
	00100	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	Burst Type = Sequential
	00100	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	Burst Length = Reserved
7536	0006A	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	MRS - MODE REGISTER SET (SO~)
0.250.262	0006A	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	Normal MRS
	0006A	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	Normal Operation
	0006A	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	Latency = 2.5
	0006A	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	Burst Type = Interleaved
	0006A	FFFFFBF	FFFFFFF	FFFFFBF	FFFFFFF	Burst Length = $4$

DDR400 MRS Cycle

### **Mechanical Outline**



### **Ordering / Contact Information**

Part Number NEX-DDRHSM

Includes: NEX-DDRHSM adapter DDRHS-RW & DDRHS Support Software NEX-DDRSPA software Manual

- Postal: Nexus Technology, Inc. 78 Northeastern Blvd. #2 Nashua, NH 03062
- **Telephone:** 877-595-8116
- **Fax:** 877-595-8118
- Email: support@nexustechnology.com quotes@nexustechnology.com techsupport@nexustechnology.com
- Website: www.nexustechnology.com

#### Placing an Order

Credit Card orders can be placed directly at 877-595-8116. Purchase orders can be faxed to 877-595-8118.

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