

3.11.5.4 – VCSDRAM Specific SDRAM Functions

The Standards in this section are special functions that are applicable to Virtual Channel SDRAM (VCSDRAM). The standards cover both SDR and DDR devices as stated on the individual Standards.

3.11.5.4.1 – Command Table for Virtual Channel SDR SDRAM

3.11.5.4.2 – Command Table for Virtual Channel DDR SDRAM

3.11.5.4.3 – Virtual Channel SDR SDRAM Mode Register Architecture

3.11.5.4.4 – Virtual Channel DDR SDRAM Mode Register Architecture

3.11.5.4.1 – Command Table for Virtual Channel SDR SDRAM

COMMAND	SYMBOL	CKE		S	RAS	CAS	WE	BA	A12	A11	A10 /AP	A9	A8	A7	A6	A5	A4	A3	A2	A1	A0
		n-1	n																		
Device Deselect	DESL	H	X	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
No Operation	NOP	H	X	L	H	H	H	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Prefetch without/with auto precharge	PFC/PFCA	H	X	L	H	H	L	BA	CHA	CHA	PS	CHA	L	L	L	L	X	X	X	SGA	SGA
Pair Prefetch without/with auto precharge	PPF/PPFA	H	X	L	H	H	L	BA	CHA	CHA	PS	CHA	L	L	L	L	X	X	X	SGA	SGA
Prefetch to Dummy	PFD	H	X	L	H	H	L	BA	X	X	X	X	X	L	L	L	X	X	X	SGA	SGA
Restore without/with Auto Precharge	RST/RSTA	H	X	L	H	H	L	BA	CHA	CHA	PS	CHA	L	L	L	L	X	X	X	SGA	SGA
Precharge Selected Bank	PRE	H	X	L	H	H	L	BA	X	X	L	X	X	H	H	X	X	X	X	X	X
Precharge All Banks	PALL	H	X	L	H	H	L	X	X	X	H	X	X	H	H	X	X	X	X	X	X
Channel Read	READ	H	X	L	H	L	H	X	CHA	CHA	X	CHA	L	L	L	L	X	X	X	CA	CA
Channel Write	WRIT	H	X	L	H	L	L	L	CHA	CHA	X	CHA	L	L	L	L	X	X	X	CA	CA
Dummy Channel Write without/with Auto Restore	WRD/ WRDA	H	X	L	H	L	L	H	X	X	X	X	R	S	L	L	X	X	X	CA	CA
Bank Activate	ACT	H	X	L	L	H	H	BA	L	L	L	L	L	L	L	L	L	L	L	L	L
Prefetch Read with Auto Precharge (optional)	PFR	H	X	L	L	H	L	SGA	CHA	CHA	SGA	CHA	L	L	L	L	L	L	L	L	L
Self Register Operation	MRS	H	X	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L	L

REMARKS H: High Level L: Low Level X: High or Low Level (Don't Care)

PS: Auto Precharge Select (H: with auto precharge, L: without auto precharge)

RS: Auto Restore Select (H: with auto restore, L: without auto restore) BA: Bank Address

RA: Row Address CA: Column Address CHA: Channel Address SGA: Segment Address

CL: CAS Latency BT: Burst Type BL: Burst Length TM: Test Mode Entry

NOTE: Prefetch Read with Auto Precharge Command is optional

3.11.5.4.1– Command Table for Virtual Channel SDR SDRAM