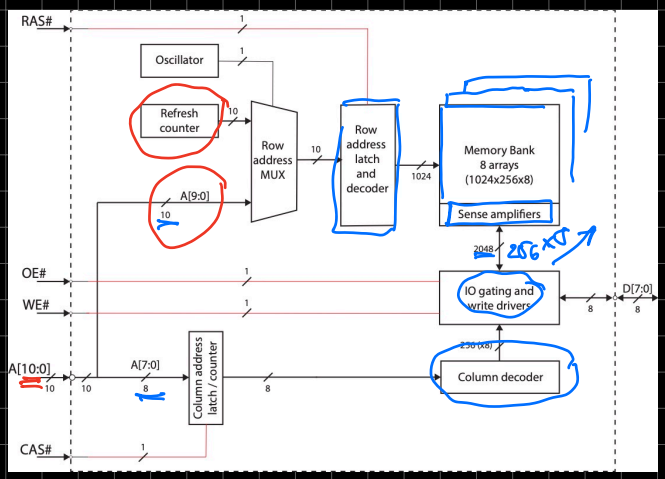
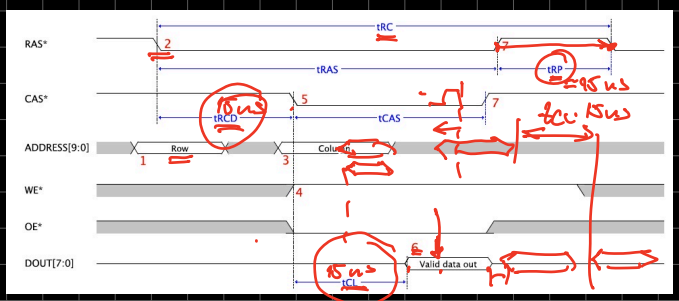




POVZETEK IDEJA

→ NE ZAPIRAJ VRSTICE! (↷ beri iz iste vrstice
⇓
izkoristi prostorsko in časovno (ne)lokalnost)

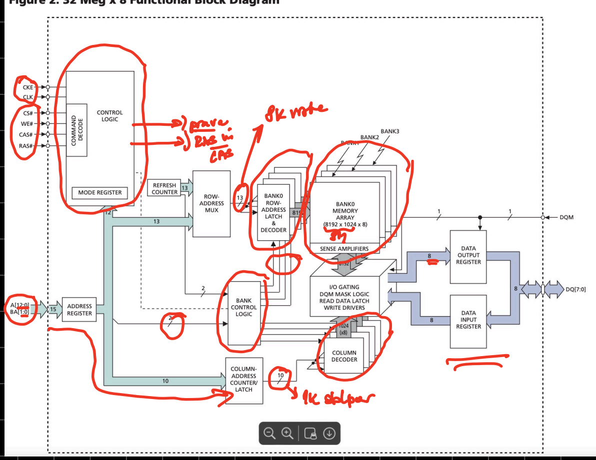
→ SKUŠAJMO STOLPCE IZBIRATI TAKO, DA PREPLETAMO NALAGANJE STOLPCA IN BRANJE IZ STOLPCA
⇓ "Natančno upreglanje s časom"
↷ V DRAM vgradimo logiko, ki bo prepletala te dve

↷ POTENCIALNO NEGATIVNO:
tisti ki nalaga RAM, le-temu pasja "UKAZE"

⇓

VSETO: SDRAM

Figure 2: 32 Meg x 8 Functional Block Diagram



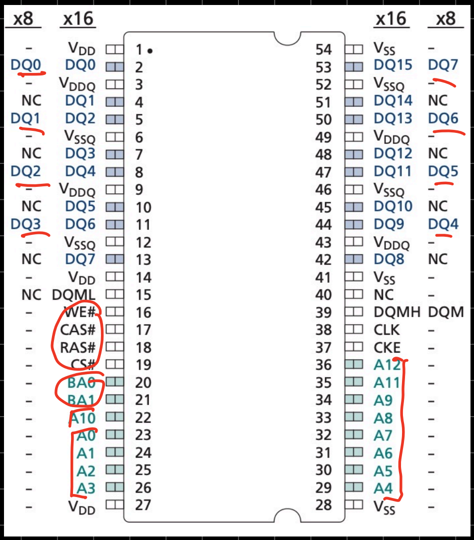


Table 14: Truth Table – Commands and DQM Operation

Note 1 applies to all parameters and conditions

Name (Function)	CS#	RAS#	CAS#	WE#	DQM	ADDR	DQ	Notes
COMMAND INHIBIT (NOP)	H	X	X	X	X	X	X	
NO OPERATION (NOP)	L	H	H	H	X	X	X	
ACTIVE (select bank and activate row) ODPRE VRSTICO	L	L	H	H	X	Bank/row	X	2
READ (select bank and column, and start READ burst)	L	H	L	H	L/H	Bank/col	X	3
WRITE (select bank and column, and start WRITE burst)	L	H	L	L	L/H	Bank/col	Valid	3
BURST TERMINATE	L	H	H	L	X	X	Active	4
PRECHARGE (Deactivate row in bank or banks) ZAPRE VRSTICO	L	L	H	L	X	Code	X	5
AUTO REFRESH or SELF REFRESH (enter self refresh mode)	L	L	L	H	X	X	X	6, 7
LOAD MODE REGISTER	L	L	L	L	X	Op-code	X	8
Write enable/output enable	X	X	X	X	L	X	Active	9
Write inhibit/output High-Z	X	X	X	X	H	X	High-Z	9

Eksplozijski prenos (BURST)

↳ ko zahtevamo branje enega stolpca iz odprte vrstice, nam RAM tako vrne namesto 1 besede 2, 4, 8, ... sosednjih besed

↙ dolžina eksplozijskega prenosa (BL)

↳ se jo da nastaviti

t_{CL} tudi merimo v številu urnih period

↙ to nastavi tudi, ko RAM nastavljamo, glede na svojo uro

NASTAVLJA SE V MODE registru

Figure 19: Mode Register Definition

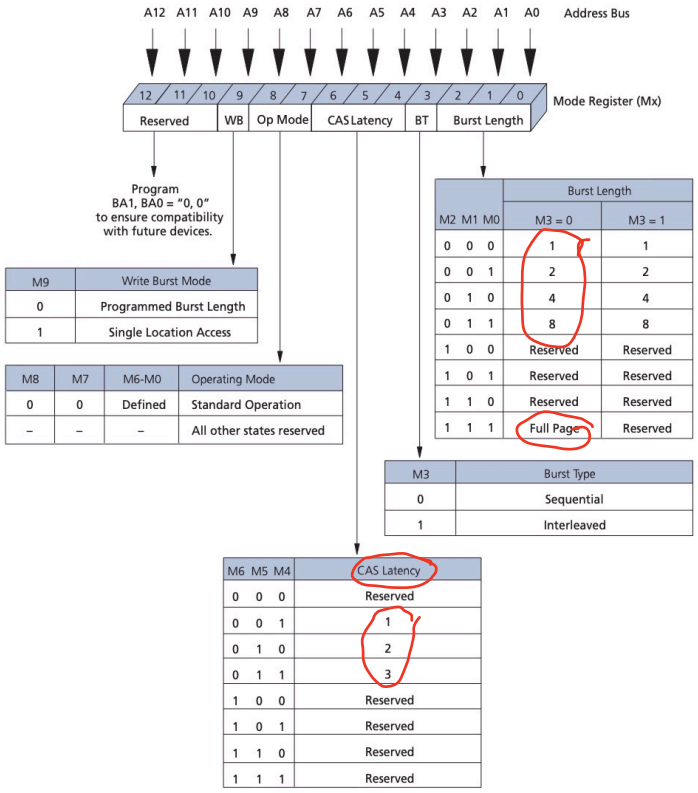


Table 1: Key Timing Parameters

CL = CAS (READ) latency

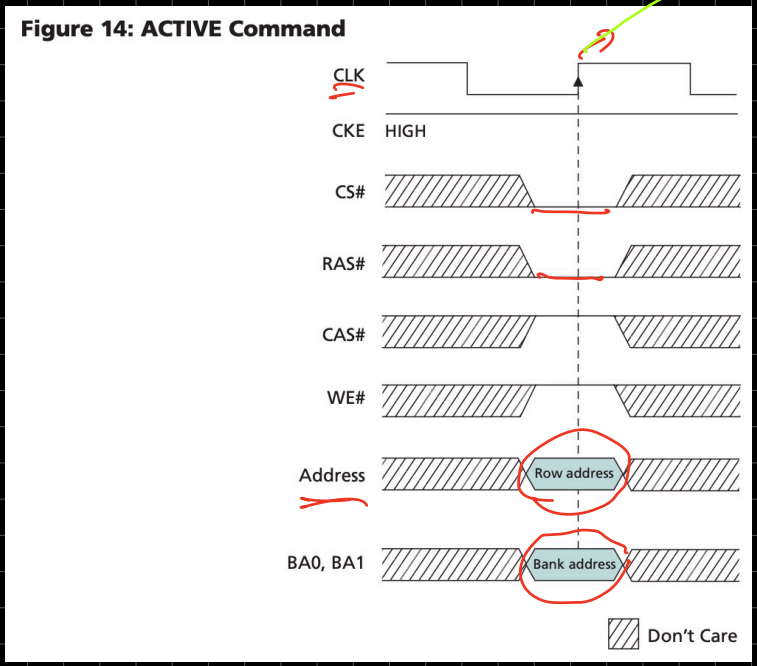
Speed Grade	Clock Frequency (MHz)	Target ^{t}RCD-^{t}RP-CL	^{t}RCD (ns)	^{t}RP (ns)	CL (ns)
-6A	167	3-3-3	18	18	18
-75	133	3-3-3	20	20	20
-7E	133	2-2-2	15	15	15

UPORABA

1. ODPIRANJE VRSTICE

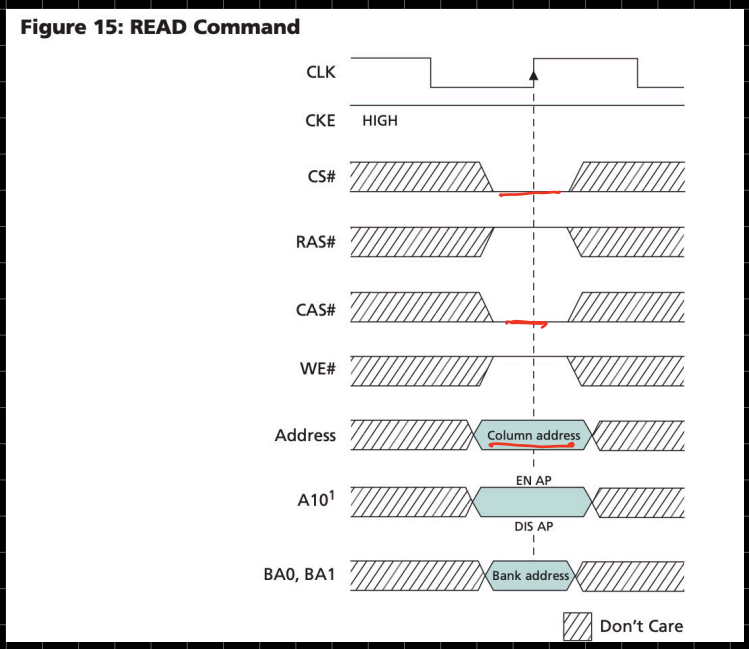
SRAM REGISTRA UKAZ

Figure 14: ACTIVE Command

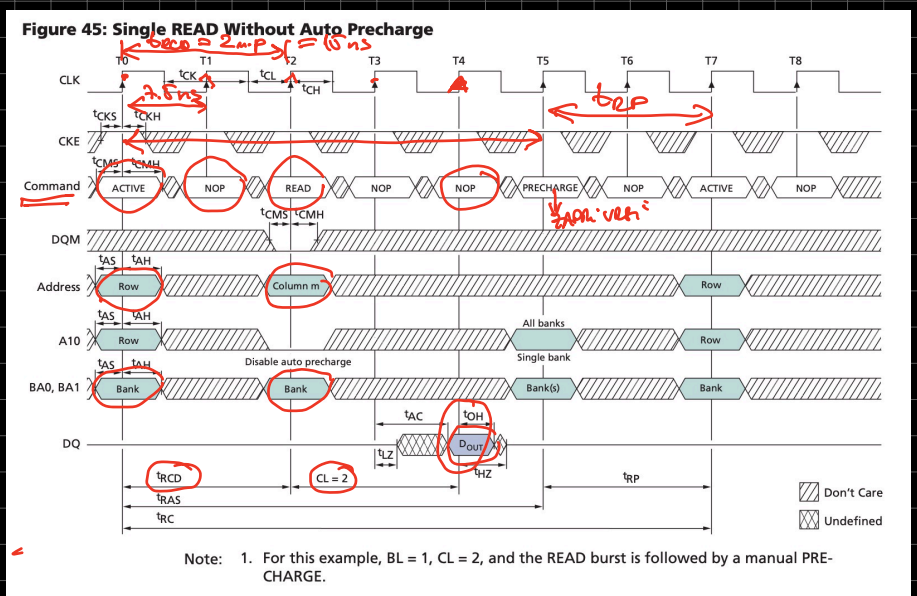


2) IZBIRA STOLPCA (BRANJE)

Figure 15: READ Command



3) Najkrajše branje ene besede

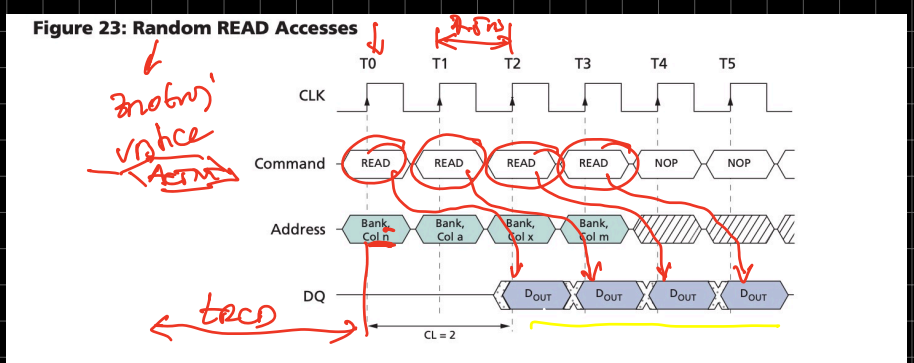


$t_{acc} = t_{RCD} + t_{CL} + 1 + t_{RP} =$

$2 + 2 + 1 + 2 = 7$

7 up / besedo

105 ns / besedo



$\Rightarrow BL = 1$

$$t_{access} = \underset{2}{t_{RCD}} + \underset{2}{CL} + 4 + \underset{2}{t_{RP}}$$

$= 10$ up / 4 besede

70 ns

≈ 18 ns / besedo