

Welcome to E-XFL.COM

Understanding [Embedded - Microprocessors](#)

Embedded microprocessors are specialized computing chips designed to perform specific tasks within an embedded system. Unlike general-purpose microprocessors found in personal computers, embedded microprocessors are tailored for dedicated functions within larger systems, offering optimized performance, efficiency, and reliability. These microprocessors are integral to the operation of countless electronic devices, providing the computational power necessary for controlling processes, handling data, and managing communications.

Applications of [Embedded - Microprocessors](#)

Embedded microprocessors are utilized across a broad spectrum of applications, making them indispensable in

Details

Product Status	Active
Core Processor	MPC8xx
Number of Cores/Bus Width	1 Core, 32-Bit
Speed	66MHz
Co-Processors/DSP	Communications; CPM, Security; SEC
RAM Controllers	DRAM
Graphics Acceleration	No
Display & Interface Controllers	-
Ethernet	10Mbps (1), 10/100Mbps (2)
SATA	-
USB	USB 2.0 (1)
Voltage - I/O	3.3V
Operating Temperature	0°C ~ 95°C (TA)
Security Features	Cryptography
Package / Case	256-BBGA
Supplier Device Package	256-PBGA (23x23)
Purchase URL	https://www.e-xfl.com/pro/item?MUrl=&PartUrl=mpc875zt66

The MPC875 block diagram is shown in [Figure 1](#).

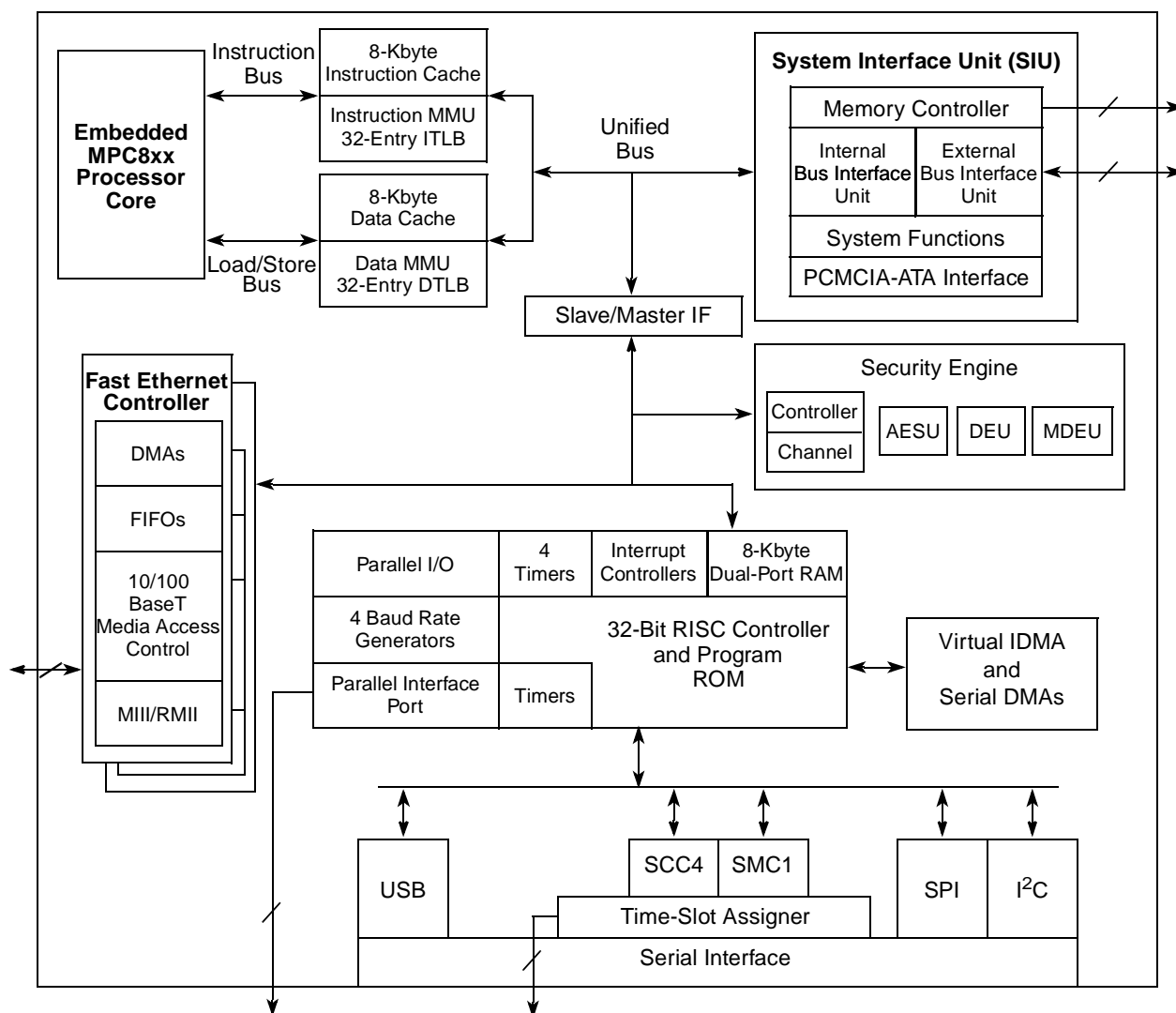


Figure 1. MPC875 Block Diagram

3 Maximum Tolerated Ratings

This section provides the maximum tolerated voltage and temperature ranges for the MPC875/MPC870. Table 2 displays the maximum tolerated ratings and Table 3 displays the operating temperatures.

Table 2. Maximum Tolerated Ratings

Rating	Symbol	Value	Unit
Supply voltage ¹	V_{DDL} (core voltage)	-0.3 to 3.4	V
	V_{DDH} (I/O voltage)	-0.3 to 4	V
	V_{DDSYN}	-0.3 to 3.4	V
	Difference between V_{DDL} and V_{DDSYN}	<100	mV
Input voltage ²	V_{in}	GND - 0.3 to V_{DDH}	V
Storage temperature range	T_{stg}	-55 to +150	°C

¹ The power supply of the device must start its ramp from 0.0 V.

² Functional operating conditions are provided with the DC electrical specifications in Table 6. Absolute maximum ratings are stress ratings only; functional operation at the maxima is not guaranteed. Stress beyond those listed may affect device reliability or cause permanent damage to the device.

Caution: All inputs that tolerate 5 V cannot be more than 2.5 V greater than V_{DDH} . This restriction applies to power up and normal operation (that is, if the MPC875/MPC870 is unpowered, a voltage greater than 2.5 V must not be applied to its inputs).

Figure 3 shows the undershoot and overshoot voltages at the interfaces of the MPC875/MPC870.

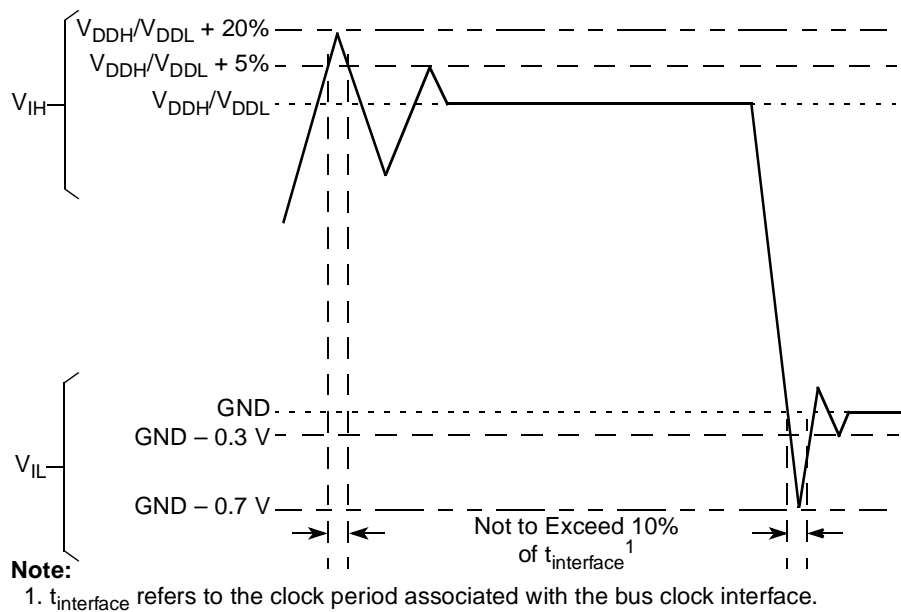


Figure 3. Undershoot/Overshoot Voltage for V_{DDH} and V_{DDL}

Table 10. Bus Operation Timings (continued)

Num	Characteristic	33 MHz		40 MHz		66 MHz		80 MHz		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
B30d	$\overline{WE}(0:3)/\overline{BS_B}[0:3]$ negated to A(0:31), BADDR(28:30) invalid GPCM write access TRLX = 1, CSNT = 1, \overline{CS} negated to A(0:31) invalid GPCM write access TRLX = 1, CSNT = 1, ACS = 10 or 11, EBDF = 1	38.67	—	31.38	—	17.83	—	14.19	—	ns
B31	CLKOUT falling edge to \overline{CS} valid as requested by control bit CST4 in the corresponding word in the UPM (MAX = $0.00 \times B1 + 6.00$)	1.50	6.00	1.50	6.00	1.50	6.00	1.50	6.00	ns
B31a	CLKOUT falling edge to \overline{CS} valid as requested by control bit CST1 in the corresponding word in the UPM (MAX = $0.25 \times B1 + 6.80$)	7.60	14.30	6.30	13.00	3.80	10.50	3.13	10.00	ns
B31b	CLKOUT rising edge to \overline{CS} valid, as requested by control bit CST2 in the corresponding word in the UPM (MAX = $0.00 \times B1 + 8.00$)	1.50	8.00	1.50	8.00	1.50	8.00	1.50	8.00	ns
B31c	CLKOUT rising edge to \overline{CS} valid, as requested by control bit CST3 in the corresponding word in the UPM (MAX = $0.25 \times B1 + 6.30$)	7.60	13.80	6.30	12.50	3.80	10.00	3.13	9.40	ns
B31d	CLKOUT falling edge to \overline{CS} valid as requested by control bit CST1 in the corresponding word in the UPM EBDF = 1 (MAX = $0.375 \times B1 + 6.6$)	13.30	18.00	11.30	16.00	7.60	12.30	4.69	11.30	ns
B32	CLKOUT falling edge to \overline{BS} valid as requested by control bit BST4 in the corresponding word in the UPM (MAX = $0.00 \times B1 + 6.00$)	1.50	6.00	1.50	6.00	1.50	6.00	1.50	6.00	ns
B32a	CLKOUT falling edge to \overline{BS} valid as requested by control bit BST1 in the corresponding word in the UPM, EBDF = 0 (MAX = $0.25 \times B1 + 6.80$)	7.60	14.30	6.30	13.00	3.80	10.50	3.13	10.00	ns
B32b	CLKOUT rising edge to \overline{BS} valid, as requested by control bit BST2 in the corresponding word in the UPM (MAX = $0.00 \times B1 + 8.00$)	1.50	8.00	1.50	8.00	1.50	8.00	1.50	8.00	ns
B32c	CLKOUT rising edge to \overline{BS} valid, as requested by control bit BST3 in the corresponding word in the UPM (MAX = $0.25 \times B1 + 6.80$)	7.60	14.30	6.30	13.00	3.80	10.50	3.13	10.00	ns
B32d	CLKOUT falling edge to \overline{BS} valid as requested by control bit BST1 in the corresponding word in the UPM, EBDF = 1 (MAX = $0.375 \times B1 + 6.60$)	13.30	18.00	11.30	16.00	7.60	12.30	4.49	11.30	ns
B33	CLKOUT falling edge to \overline{GPL} valid as requested by control bit GxT4 in the corresponding word in the UPM (MAX = $0.00 \times B1 + 6.00$)	1.50	6.00	1.50	6.00	1.50	6.00	1.50	6.00	ns

Table 10. Bus Operation Timings (continued)

Num	Characteristic	33 MHz		40 MHz		66 MHz		80 MHz		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
B33a	CLKOUT rising edge to $\overline{\text{GPL}}$ valid as requested by control bit GxT3 in the corresponding word in the UPM (MAX = $0.25 \times B1 + 6.80$)	7.60	14.30	6.30	13.00	3.80	10.50	3.13	10.00	ns
B34	A(0:31), BADDR(28:30), and D(0:31) to $\overline{\text{CS}}$ valid, as requested by control bit CST4 in the corresponding word in the UPM (MIN = $0.25 \times B1 - 2.00$)	5.60	—	4.30	—	1.80	—	1.13	—	ns
B34a	A(0:31), BADDR(28:30), and D(0:31) to $\overline{\text{CS}}$ valid, as requested by control bit CST1 in the corresponding word in the UPM (MIN = $0.50 \times B1 - 2.00$)	13.20	—	10.50	—	5.60	—	4.25	—	ns
B34b	A(0:31), BADDR(28:30), and D(0:31) to $\overline{\text{CS}}$ valid, as requested by CST2 in the corresponding word in UPM (MIN = $0.75 \times B1 - 2.00$)	20.70	—	16.70	—	9.40	—	6.80	—	ns
B35	A(0:31), BADDR(28:30) to $\overline{\text{CS}}$ valid as requested by control bit BST4 in the corresponding word in the UPM (MIN = $0.25 \times B1 - 2.00$)	5.60	—	4.30	—	1.80	—	1.13	—	ns
B35a	A(0:31), BADDR(28:30), and D(0:31) to $\overline{\text{BS}}$ valid as requested by BST1 in the corresponding word in the UPM (MIN = $0.50 \times B1 - 2.00$)	13.20	—	10.50	—	5.60	—	4.25	—	ns
B35b	A(0:31), BADDR(28:30), and D(0:31) to $\overline{\text{BS}}$ valid as requested by control bit BST2 in the corresponding word in the UPM (MIN = $0.75 \times B1 - 2.00$)	20.70	—	16.70	—	9.40	—	7.40	—	ns
B36	A(0:31), BADDR(28:30), and D(0:31) to $\overline{\text{GPL}}$ valid as requested by control bit GxT4 in the corresponding word in the UPM (MIN = $0.25 \times B1 - 2.00$)	5.60	—	4.30	—	1.80	—	1.13	—	ns
B37	UPWAIT valid to CLKOUT falling edge ⁹ (MIN = $0.00 \times B1 + 6.00$)	6.00	—	6.00	—	6.00	—	6.00	—	ns
B38	CLKOUT falling edge to UPWAIT valid ⁹ (MIN = $0.00 \times B1 + 1.00$)	1.00	—	1.00	—	1.00	—	1.00	—	ns
B39	$\overline{\text{AS}}$ valid to CLKOUT rising edge ¹⁰ (MIN = $0.00 \times B1 + 7.00$)	7.00	—	7.00	—	7.00	—	7.00	—	ns
B40	A(0:31), TSIZ(0:1), RD/ $\overline{\text{WR}}$, $\overline{\text{BURST}}$ valid to CLKOUT rising edge (MIN = $0.00 \times B1 + 7.00$)	7.00	—	7.00	—	7.00	—	7.00	—	ns
B41	$\overline{\text{TS}}$ valid to CLKOUT rising edge (setup time) (MIN = $0.00 \times B1 + 7.00$)	7.00	—	7.00	—	7.00	—	7.00	—	ns

Figure 5 provides the control timing diagram.

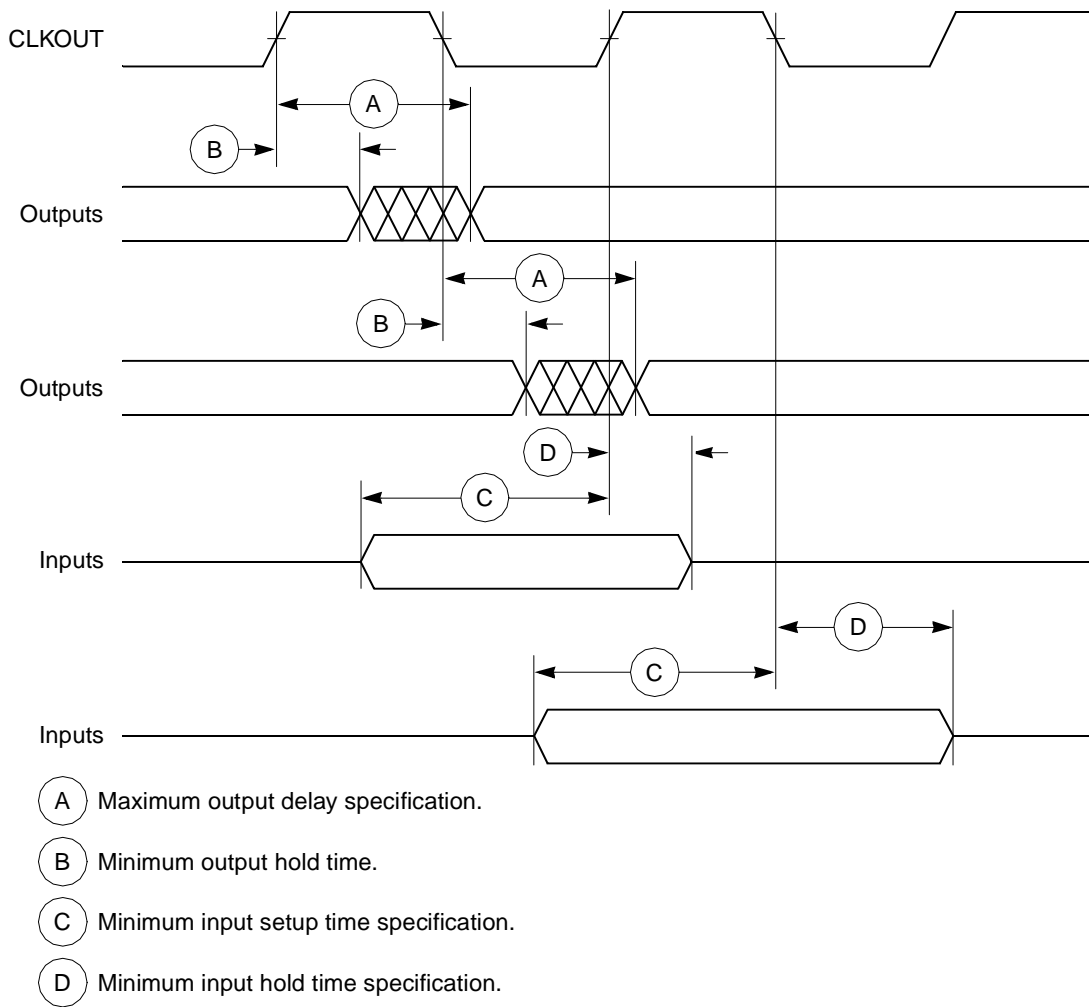


Figure 5. Control Timing

Figure 6 provides the timing for the external clock.

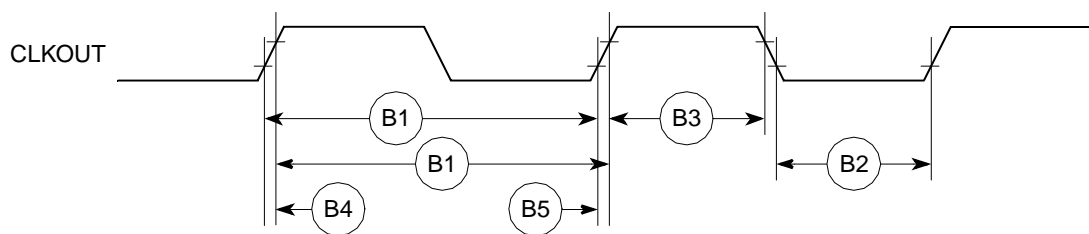


Figure 6. External Clock Timing

Figure 9 provides the timing for the synchronous input signals.

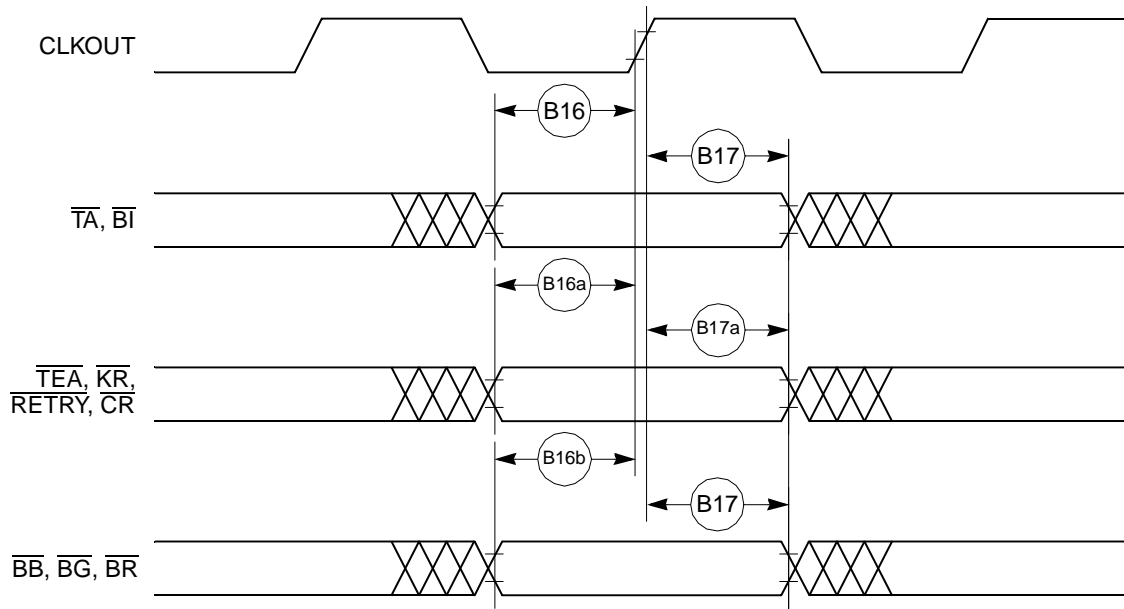


Figure 9. Synchronous Input Signals Timing

Figure 10 provides normal case timing for input data. It also applies to normal read accesses under the control of the user-programmable machine (UPM) in the memory controller.

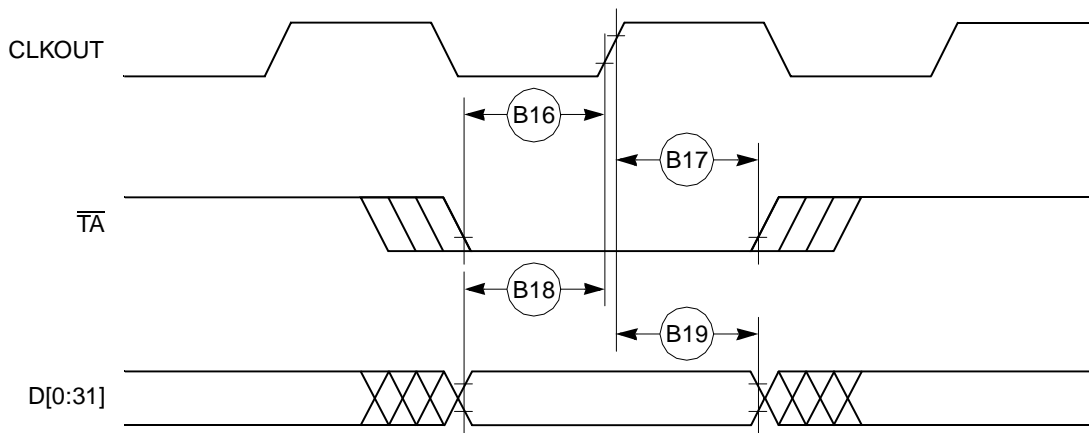


Figure 10. Input Data Timing in Normal Case

Figure 11 provides the timing for the input data controlled by the UPM for data beats where $DLT3 = 1$ in the UPM RAM words. (This is only the case where data is latched on the falling edge of CLKOUT.)

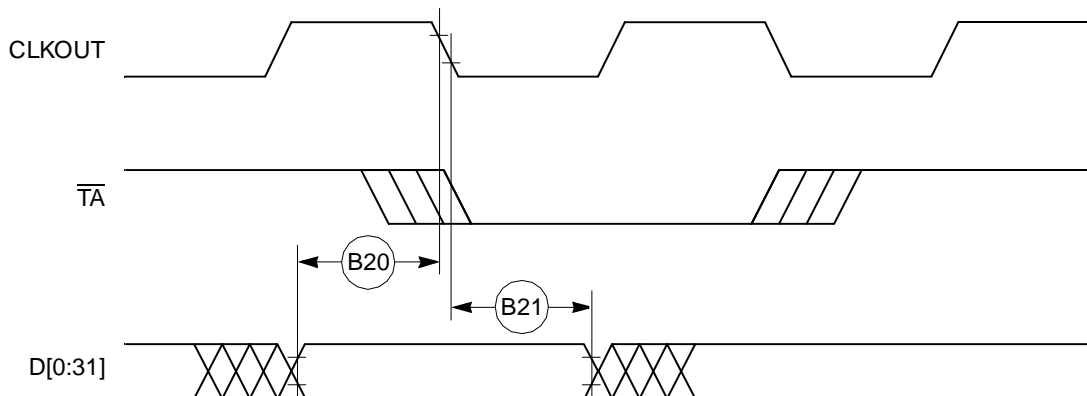


Figure 11. Input Data Timing when Controlled by UPM in the Memory Controller and $DLT3 = 1$

Figure 12 through Figure 15 provide the timing for the external bus read controlled by various GPCM factors.

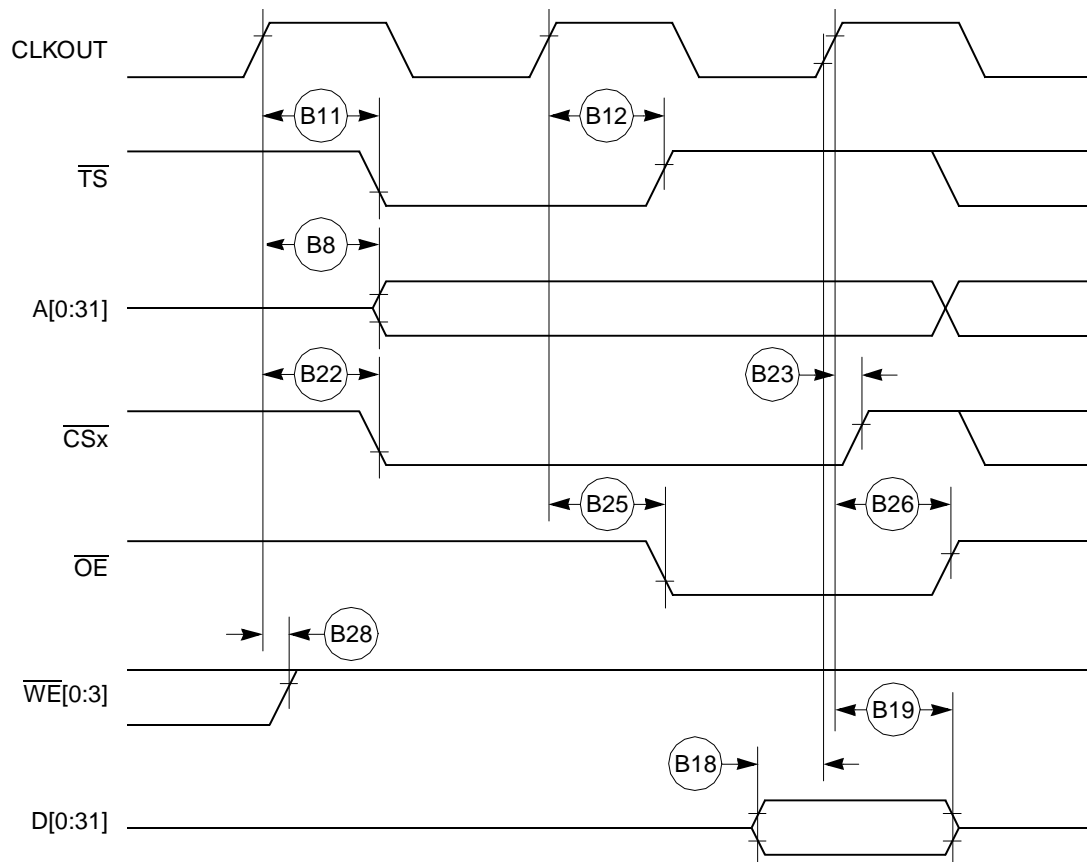


Figure 12. External Bus Read Timing (GPCM Controlled— $ACS = 00$)

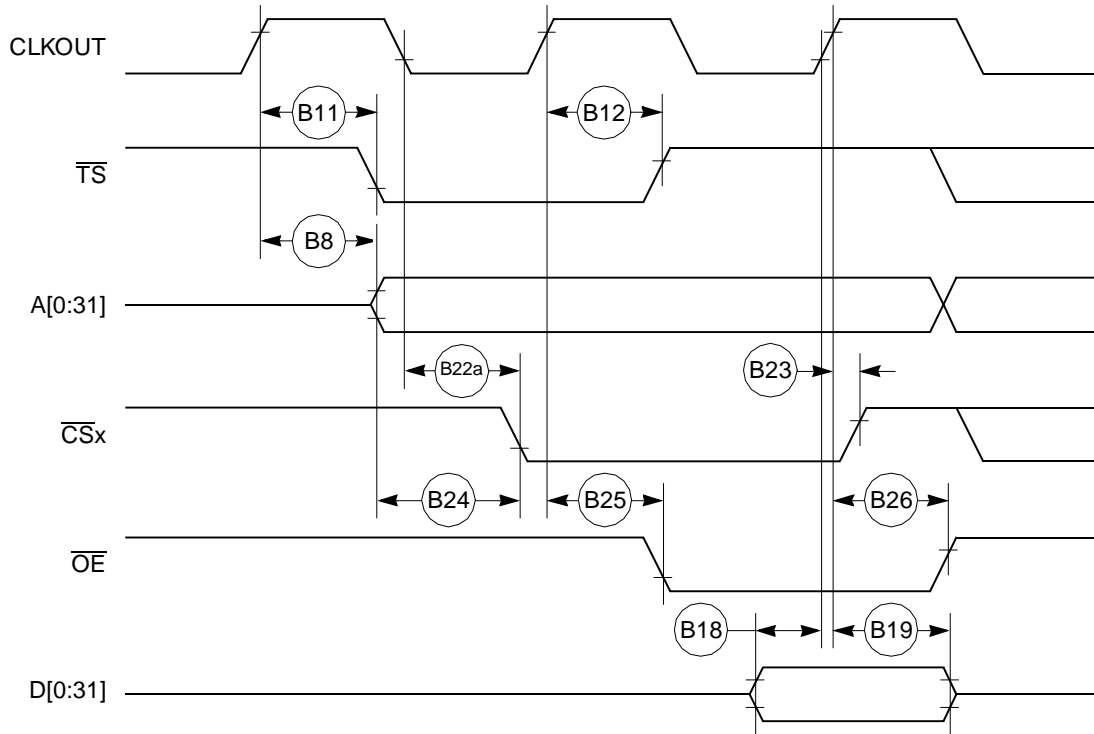


Figure 13. External Bus Read Timing (GPCM Controlled—TRLX = 0, ACS = 10)

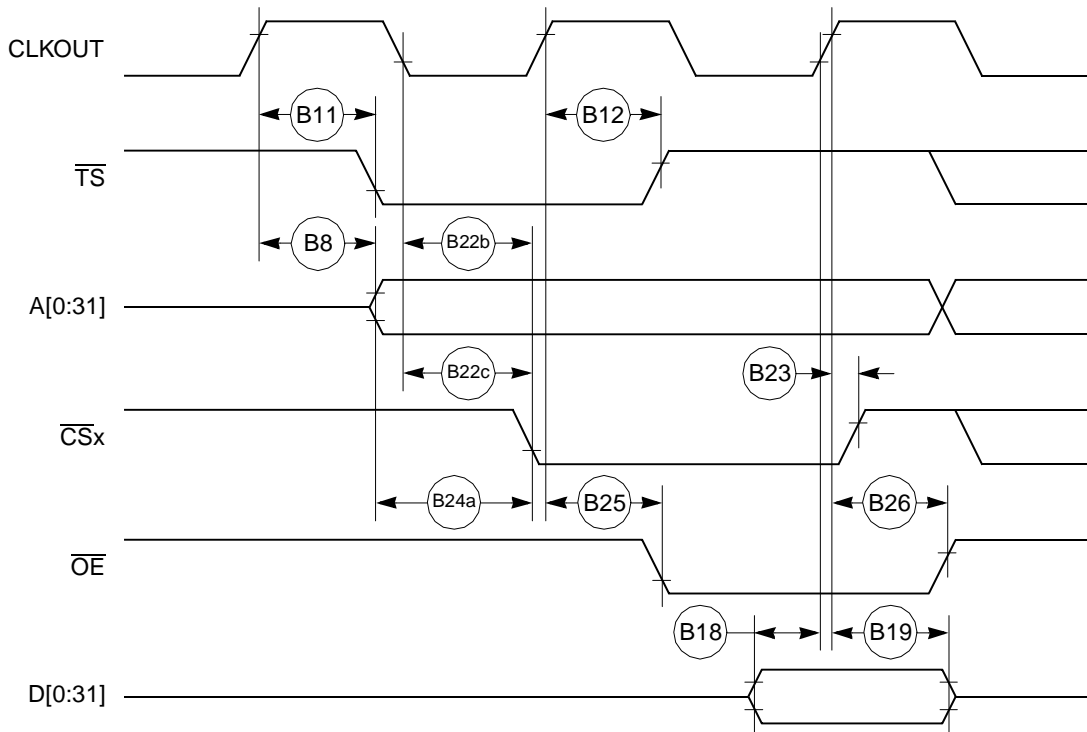


Figure 14. External Bus Read Timing (GPCM Controlled—TRLX = 0, ACS = 11)

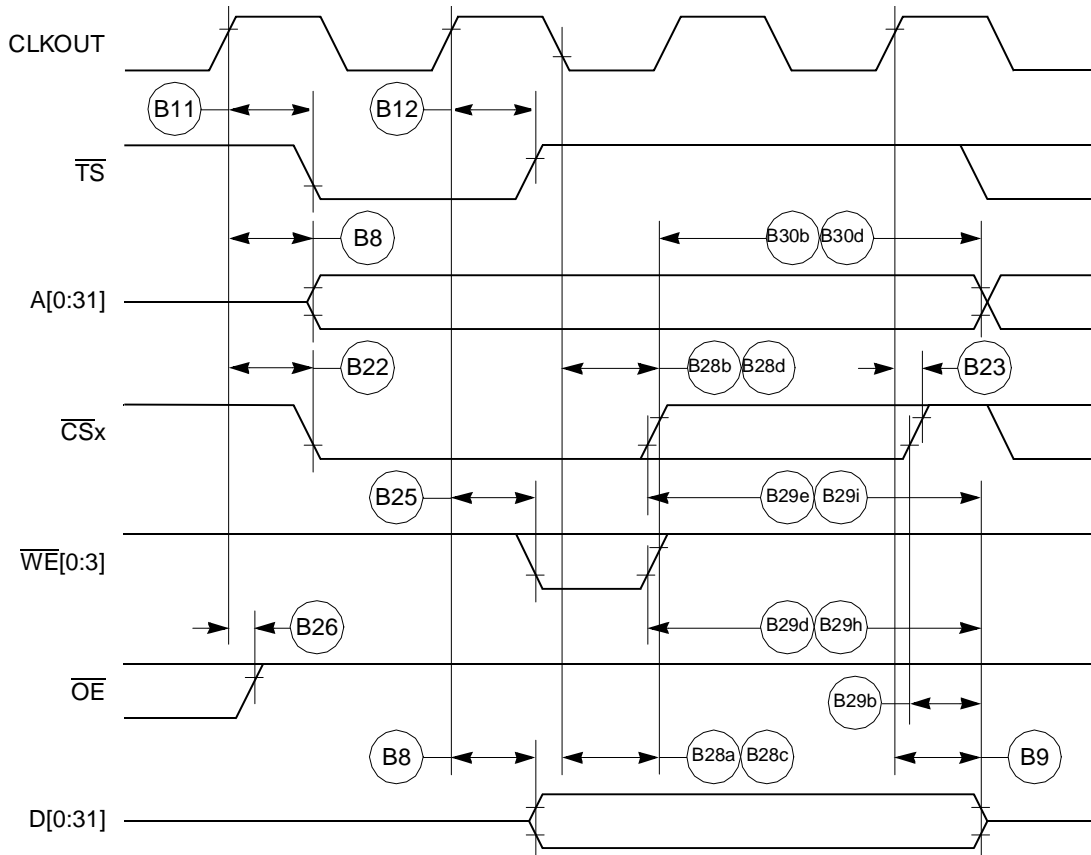


Figure 18. External Bus Write Timing (GPCM Controlled—TRLX = 1, CSNT = 1)

Figure 22 provides the timing for the synchronous external master access controlled by the GPCM.

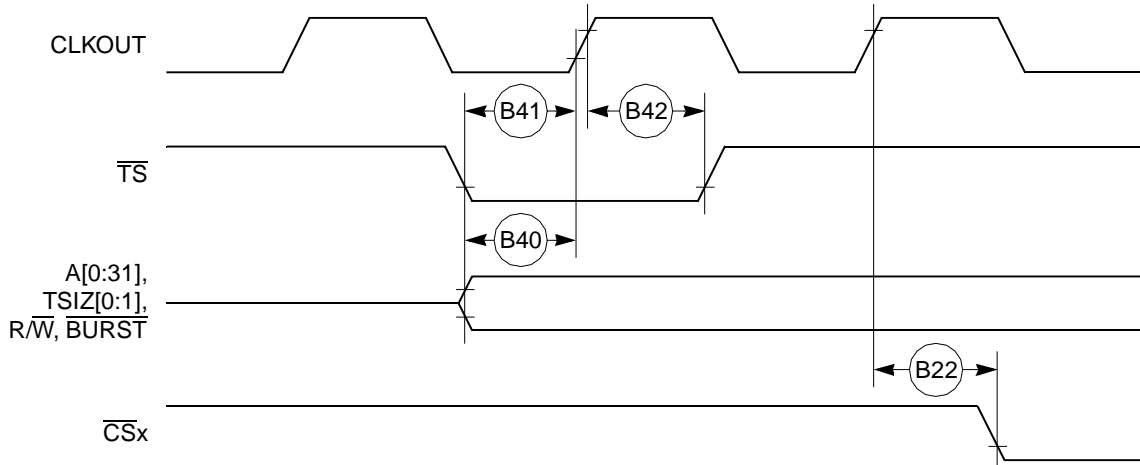


Figure 22. Synchronous External Master Access Timing (GPCM Handled ACS = 00)

Figure 23 provides the timing for the asynchronous external master memory access controlled by the GPCM.

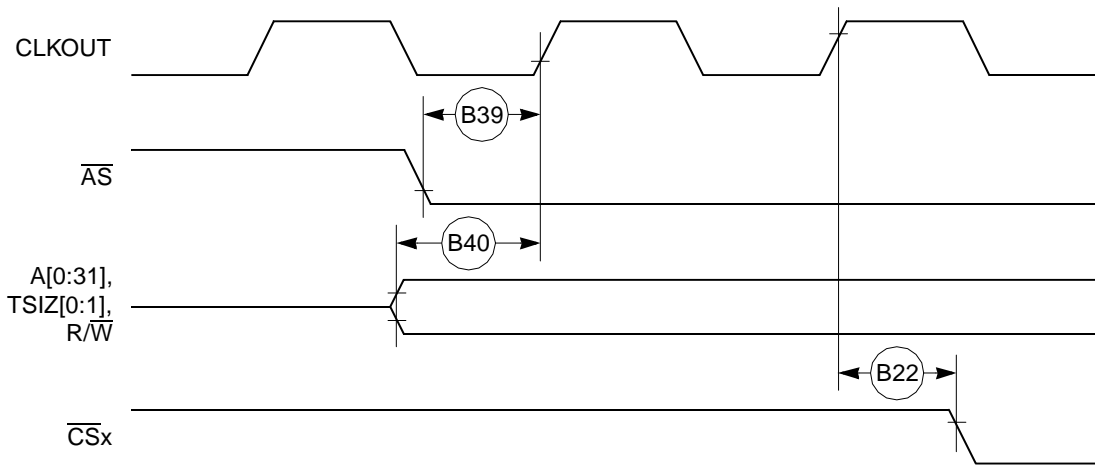


Figure 23. Asynchronous External Master Memory Access Timing (GPCM Controlled—ACS = 00)

Figure 24 provides the timing for the asynchronous external master control signals negation.

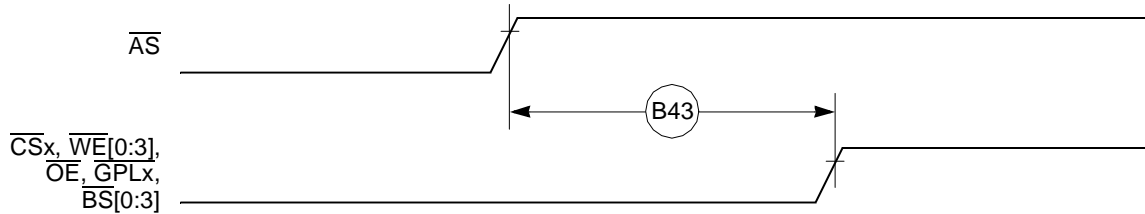


Figure 24. Asynchronous External Master—Control Signals Negation Timing

Table 15 shows the reset timing for the MPC875/MPC870.

Table 15. Reset Timing

Num	Characteristic	33 MHz		40 MHz		66 MHz		80 MHz		Unit
		Min	Max	Min	Max	Min	Max	Min	Max	
R69	CLKOUT to $\overline{\text{HRESET}}$ high impedance (MAX = $0.00 \times B1 + 20.00$)	—	20.00	—	20.00	—	20.00	—	20.00	ns
R70	CLKOUT to $\overline{\text{SRESET}}$ high impedance (MAX = $0.00 \times B1 + 20.00$)	—	20.00	—	20.00	—	20.00	—	20.00	ns
R71	$\overline{\text{RSTCONF}}$ pulse width (MIN = $17.00 \times B1$)	515.20	—	425.00	—	257.60	—	212.50	—	ns
R72	—	—	—	—	—	—	—	—	—	—
R73	Configuration data to $\overline{\text{HRESET}}$ rising edge setup time (MIN = $15.00 \times B1 + 50.00$)	504.50	—	425.00	—	277.30	—	237.50	—	ns
R74	Configuration data to $\overline{\text{RSTCONF}}$ rising edge setup time (MIN = $0.00 \times B1 + 350.00$)	350.00	—	350.00	—	350.00	—	350.00	—	ns
R75	Configuration data hold time after $\overline{\text{RSTCONF}}$ negation (MIN = $0.00 \times B1 + 0.00$)	0.00	—	0.00	—	0.00	—	0.00	—	ns
R76	Configuration data hold time after $\overline{\text{HRESET}}$ negation (MIN = $0.00 \times B1 + 0.00$)	0.00	—	0.00	—	0.00	—	0.00	—	ns
R77	$\overline{\text{HRESET}}$ and $\overline{\text{RSTCONF}}$ asserted to data out drive (MAX = $0.00 \times B1 + 25.00$)	—	25.00	—	25.00	—	25.00	—	25.00	ns
R78	$\overline{\text{RSTCONF}}$ negated to data out high impedance (MAX = $0.00 \times B1 + 25.00$)	—	25.00	—	25.00	—	25.00	—	25.00	ns
R79	CLKOUT of last rising edge before chip three-states $\overline{\text{HRESET}}$ to data out high impedance (MAX = $0.00 \times B1 + 25.00$)	—	25.00	—	25.00	—	25.00	—	25.00	ns
R80	DSDI, DSCK setup (MIN = $3.00 \times B1$)	90.90	—	75.00	—	45.50	—	37.50	—	ns
R81	DSDI, DSCK hold time (MIN = $0.00 \times B1 + 0.00$)	0.00	—	0.00	—	0.00	—	0.00	—	ns
R82	$\overline{\text{SRESET}}$ negated to CLKOUT rising edge for DSDI and DSCK sample (MIN = $8.00 \times B1$)	242.40	—	200.00	—	121.20	—	100.00	—	ns

12 IEEE 1149.1 Electrical Specifications

Table 16 provides the JTAG timings for the MPC875/MPC870 shown in Figure 37 through Figure 40.

Table 16. JTAG Timing

Num	Characteristic	All Frequencies		Unit
		Min	Max	
J82	TCK cycle time	100.00	—	ns
J83	TCK clock pulse width measured at 1.5 V	40.00	—	ns
J84	TCK rise and fall times	0.00	10.00	ns
J85	TMS, TDI data setup time	5.00	—	ns
J86	TMS, TDI data hold time	25.00	—	ns
J87	TCK low to TDO data valid	—	27.00	ns
J88	TCK low to TDO data invalid	0.00	—	ns
J89	TCK low to TDO high impedance	—	20.00	ns
J90	$\overline{\text{TRST}}$ assert time	100.00	—	ns
J91	$\overline{\text{TRST}}$ setup time to TCK low	40.00	—	ns
J92	TCK falling edge to output valid	—	50.00	ns
J93	TCK falling edge to output valid out of high impedance	—	50.00	ns
J94	TCK falling edge to output high impedance	—	50.00	ns
J95	Boundary scan input valid to TCK rising edge	50.00	—	ns
J96	TCK rising edge to boundary scan input invalid	50.00	—	ns

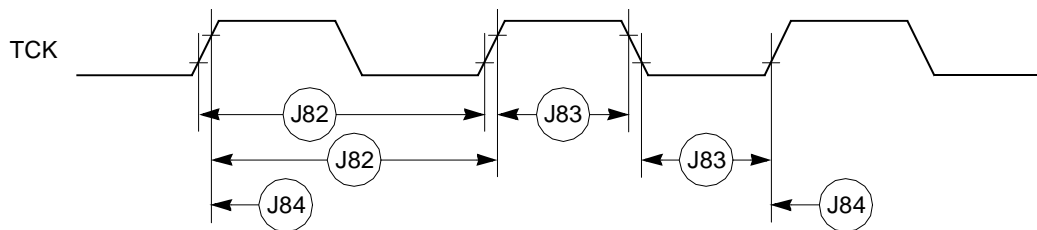


Figure 37. JTAG Test Clock Input Timing

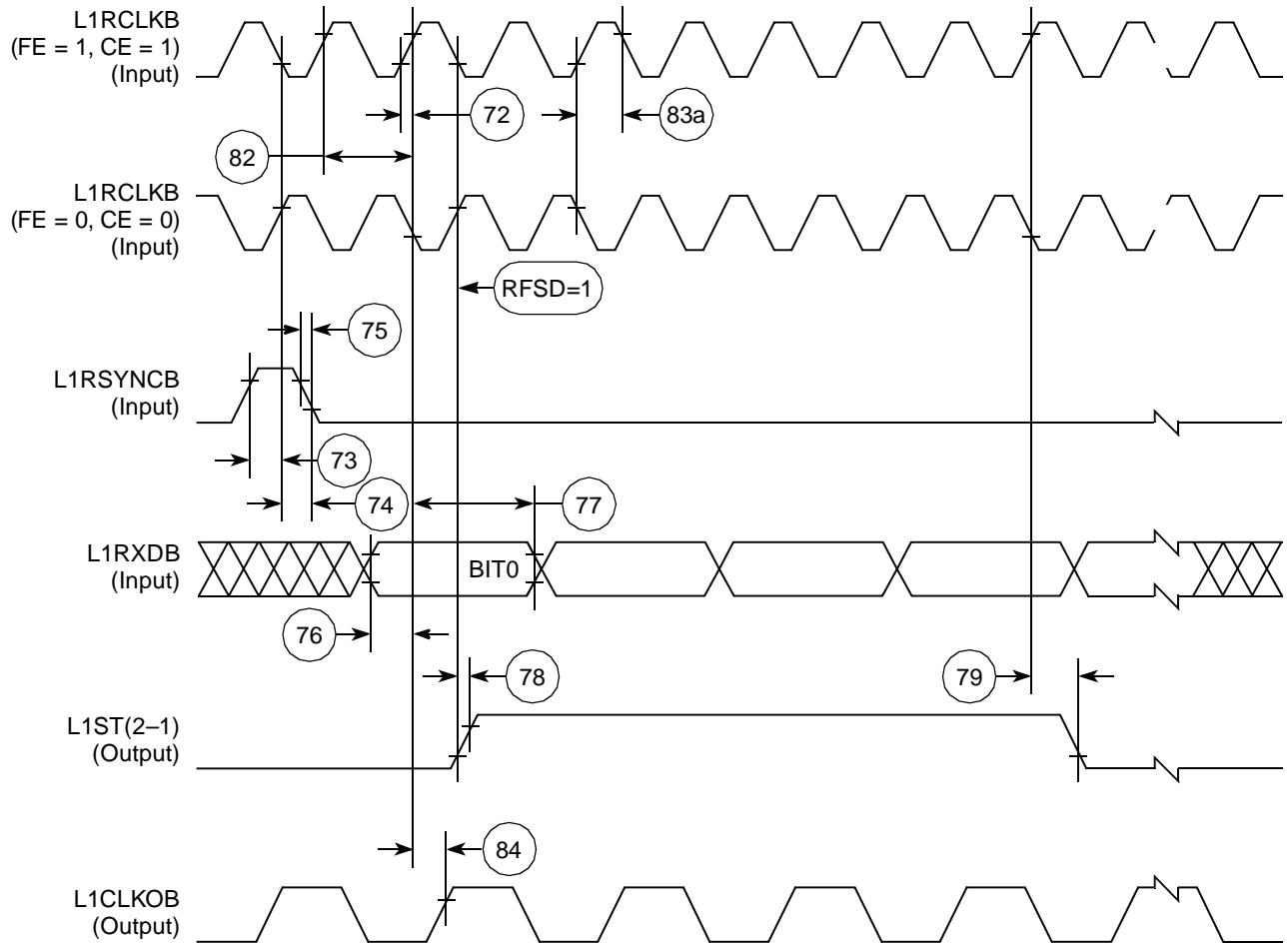


Figure 49. SI Receive Timing with Double-Speed Clocking (DSC = 1)

Table 24. Ethernet Timing (continued)

Num	Characteristic	All Frequencies		Unit
		Min	Max	
138	CLKO1 low to $\overline{\text{SDACK}}$ asserted ²	—	20	ns
139	CLKO1 low to $\overline{\text{SDACK}}$ negated ²	—	20	ns

¹ The ratios SYNCCLK/RCLK3 and SYNCCLK/TCLK3 must be greater than or equal to 2/1.

² $\overline{\text{SDACK}}$ is asserted whenever the SDMA writes the incoming frame DA into memory.

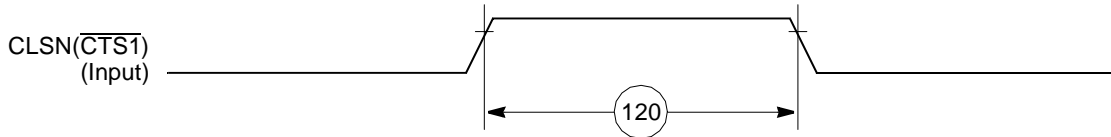


Figure 56. Ethernet Collision Timing Diagram

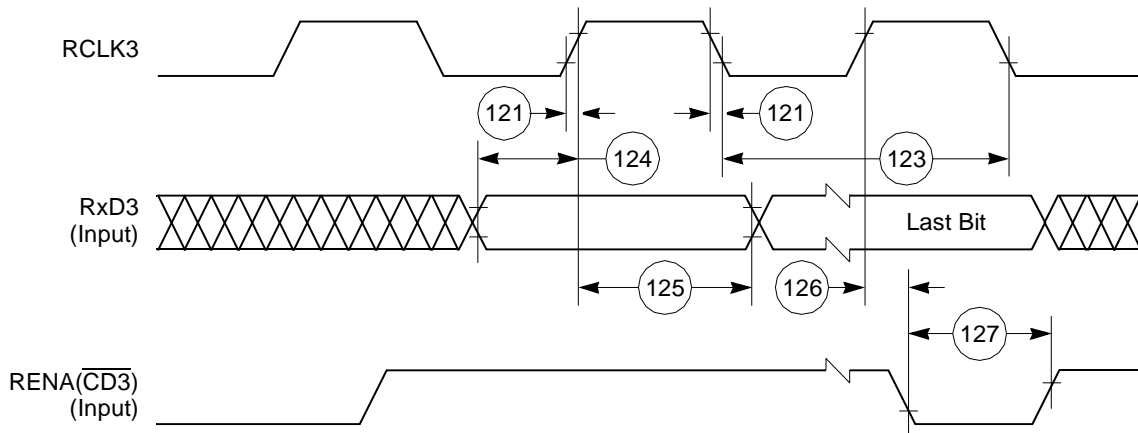


Figure 57. Ethernet Receive Timing Diagram

Table 28. I²C Timing (SCL < 100 kHz) (continued)

Num	Characteristic	All Frequencies		Unit
		Min	Max	
210	SDL/SCL fall time	—	300	ns
211	Stop condition setup time	4.7	—	μs

¹ SCL frequency is given by $SCL = BRGCLK_frequency / ((BRG\ register + 3) \times pre_scalar \times 2)$.
The ratio $SYNCCLK / (BRGCLK / pre_scalar)$ must be greater than or equal to 4/1.

Table 29 provides the I²C (SCL > 100 kHz) timings.

Table 29. I²C Timing (SCL > 100 kHz)

Num	Characteristic	Expression	All Frequencies		Unit
			Min	Max	
200	SCL clock frequency (slave)	fSCL	0	BRGCLK/48	Hz
200	SCL clock frequency (master) ¹	fSCL	BRGCLK/16512	BRGCLK/48	Hz
202	Bus free time between transmissions	—	$1 / (2.2 \times fSCL)$	—	s
203	Low period of SCL	—	$1 / (2.2 \times fSCL)$	—	s
204	High period of SCL	—	$1 / (2.2 \times fSCL)$	—	s
205	Start condition setup time	—	$1 / (2.2 \times fSCL)$	—	s
206	Start condition hold time	—	$1 / (2.2 \times fSCL)$	—	s
207	Data hold time	—	0	—	s
208	Data setup time	—	$1 / (40 \times fSCL)$	—	s
209	SDL/SCL rise time	—	—	$1 / (10 \times fSCL)$	s
210	SDL/SCL fall time	—	—	$1 / (33 \times fSCL)$	s
211	Stop condition setup time	—	$1 / 2 (2.2 \times fSCL)$	—	s

¹ SCL frequency is given by $SCL = BRGCLK_frequency / ((BRG\ register + 3) \times pre_scalar \times 2)$.
The ratio $SYNCCLK / (BRGCLK / pre_scalar)$ must be greater than or equal to 4/1.

Figure 64 shows the I²C bus timing.

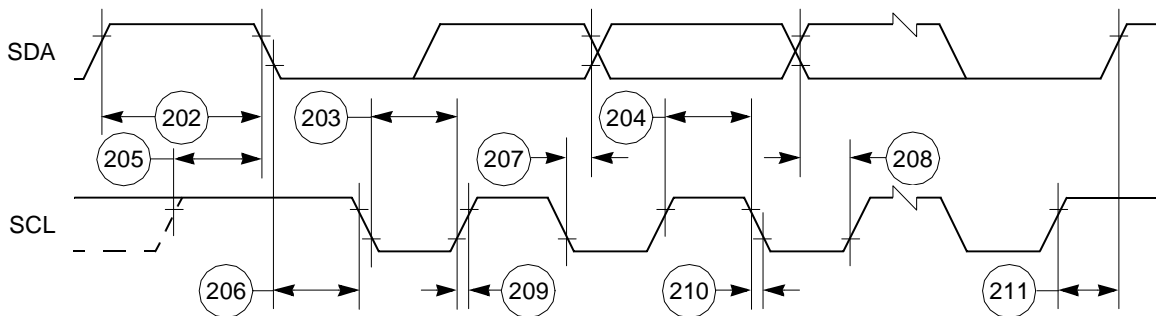


Figure 64. I²C Bus Timing Diagram

Figure 66 shows the MII transmit signal timing diagram.

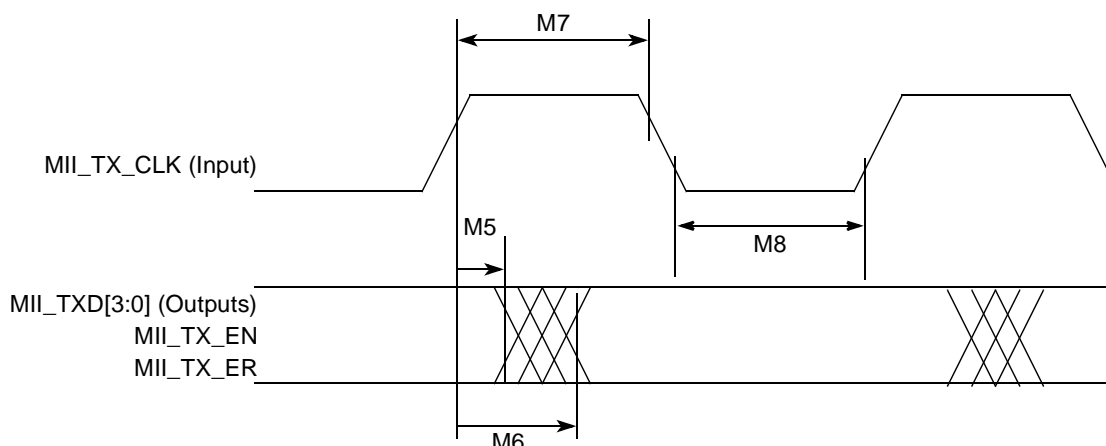


Figure 66. MII Transmit Signal Timing Diagram

15.3 MII Async Inputs Signal Timing (MII_CRIS, MII_COL)

Table 33 provides information on the MII async inputs signal timing.

Table 33. MII Async Inputs Signal Timing

Num	Characteristic	Min	Max	Unit
M9	MII_CRIS, MII_COL minimum pulse width	1.5	—	MII_TX_CLK period

Figure 67 shows the MII asynchronous inputs signal timing diagram.

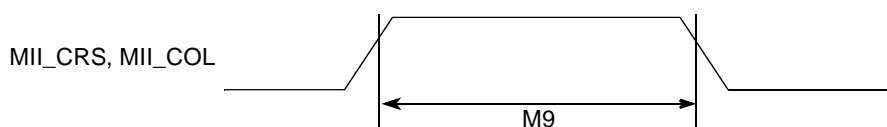


Figure 67. MII Async Inputs Timing Diagram

15.4 MII Serial Management Channel Timing (MII_MDIO, MII_MDC)

Table 34 provides information on the MII serial management channel signal timing. The FEC functions correctly with a maximum MDC frequency in excess of 2.5 MHz.

Table 34. MII Serial Management Channel Timing

Num	Characteristic	Min	Max	Unit
M10	MII_MDC falling edge to MII_MDIO output invalid (minimum propagation delay)	0	—	ns
M11	MII_MDC falling edge to MII_MDIO output valid (max prop delay)	—	25	ns
M12	MII_MDIO (input) to MII_MDC rising edge setup	10	—	ns
M13	MII_MDIO (input) to MII_MDC rising edge hold	0	—	ns
M14	MII_MDC pulse width high	40%	60%	MII_MDC period
M15	MII_MDC pulse width low	40%	60%	MII_MDC period

Table 36 contains a list of the MPC875/MPC870 input and output signals and shows multiplexing and pin assignments.

Table 36. Pin Assignments—JEDEC Standard

Name	Pin Number	Type
A[0:31]	R16, N14, M14, P15, P17, P16, N15, N16, M15, N17, L14, M16, L15, M17, K14, L16, L17, K17, G17, K15, J16, J15, G16, J14, H17, H16, G15, K16, H14, J17, H15, F17	Bidirectional Three-state (3.3 V only)
TSIZ0, $\overline{\text{REG}}$	F16	Bidirectional Three-state (3.3 V only)
TSIZ1	G14	Bidirectional Three-state (3.3 V only)
$\text{RD}/\overline{\text{WR}}$	D13	Bidirectional Three-state (3.3 V only)
$\overline{\text{BURST}}$	B9	Bidirectional Three-state (3.3 V only)
$\overline{\text{BDIP}}$, $\overline{\text{GPL_B5}}$	C13	Output
$\overline{\text{TS}}$	C11	Bidirectional Active pull-up (3.3 V only)
$\overline{\text{TA}}$	C12	Bidirectional Active pull-up (3.3 V only)
$\overline{\text{TEA}}$	B12	Open-drain
$\overline{\text{BI}}$	B13	Bidirectional Active pull-up (3.3 V only)
$\overline{\text{IRQ2}}$, $\overline{\text{RSV}}$	C9	Bidirectional Three-state (3.3 V only)
$\overline{\text{IRQ4}}$, $\overline{\text{KR}}$, $\overline{\text{RETRY}}$, SPKROUT	E9	Bidirectional Three-state (3.3 V only)
D[0:31]	L5, N3, L3, L2, R2, K2, H3, G2, R3, M3, N2, M2, M4, N4, K5, K3, K4, P3, J2, J3, J4, J5, H2, P2, H4, H5, G5, L4, G3, F2, F3, E2	Bidirectional Three-state (3.3 V only)
CR, $\overline{\text{IRQ3}}$	E10	Input
FRZ, $\overline{\text{IRQ6}}$	B10	Bidirectional Three-state (3.3 V only)
$\overline{\text{BR}}$	B11	Bidirectional (3.3 V only)
$\overline{\text{BG}}$	D10	Bidirectional (3.3 V only)
$\overline{\text{BB}}$	C10	Bidirectional Active pull-up (3.3 V only)
$\overline{\text{IRQ0}}$	M6	Input (3.3 V only)
$\overline{\text{IRQ1}}$	P5	Input (3.3 V only)
$\overline{\text{IRQ7}}$	N5	Input (3.3 V only)
$\overline{\text{CS}}$ [0:5]	B14, E11, C14, B15, E13, B16	Output

Table 36. Pin Assignments—JEDEC Standard (continued)

Name	Pin Number	Type
TDO, DSDO	P13	Output (5-V tolerant)
MII1_CRS	U10	Input
MII_MDIO	M13	Bidirectional (5-V tolerant)
MII1_TX_EN, RMII1_TX_EN	U5	Output (5-V tolerant)
MII1_COL	R10	Input
V _{SSSYN}	E5	PLL analog GND
V _{SSSYN1}	F6	PLL analog GND
V _{DDSYN}	E6	PLL analog V _{DD}
GND	H8, H9, H10, H11, J8, J9, J10, J11, K8, K9, K10, K11, L8, L9, L10, L11, U15	Power
V _{DDL}	F7, F8, F9, F10, F11, H6, H13, J6, J13, K6, K13, L6, L13, N7, N8, N9, N10, N11	Power
V _{DDH}	G7, G8, G9, G10, G11, G12, H7, H12, J7, J12, K7, K12, L7, L12, M7, M8, M9, M10, M11, M12	Power
N/C	B17, T16, U2, U17	No connect

THIS PAGE INTENTIONALLY LEFT BLANK

How to Reach Us:

Home Page:

www.freescale.com

Web Support:

<http://www.freescale.com/support>

USA/Europe or Locations Not Listed:

Freescale Semiconductor, Inc.
 Technical Information Center, EL516
 2100 East Elliot Road
 Tempe, Arizona 85284
 +1-800-521-6274 or
 +1-480-768-2130
www.freescale.com/support

Europe, Middle East, and Africa:

Freescale Halbleiter Deutschland GmbH
 Technical Information Center
 Schatzbogen 7
 81829 Muenchen, Germany
 +44 1296 380 456 (English)
 +46 8 52200080 (English)
 +49 89 92103 559 (German)
 +33 1 69 35 48 48 (French)
www.freescale.com/support

Japan:

Freescale Semiconductor Japan Ltd.
 Headquarters
 ARCO Tower 15F
 1-8-1, Shimo-Meguro, Meguro-ku
 Tokyo 153-0064
 Japan
 0120 191014 or
 +81 3 5437 9125
support.japan@freescale.com

Asia/Pacific:

Freescale Semiconductor Hong Kong Ltd.
 Technical Information Center
 2 Dai King Street
 Tai Po Industrial Estate
 Tai Po, N.T., Hong Kong
 +800 2666 8080
support.asia@freescale.com

For Literature Requests Only:

Freescale Semiconductor
 Literature Distribution Center
 P.O. Box 5405
 Denver, Colorado 80217
 +1-800 441-2447 or
 +1-303-675-2140
 Fax: +1-303-675-2150
LDCForFreescaleSemiconductor@hibbertgroup.com

Information in this document is provided solely to enable system and software implementers to use Freescale Semiconductor products. There are no express or implied copyright licenses granted hereunder to design or fabricate any integrated circuits or integrated circuits based on the information in this document.

Freescale Semiconductor reserves the right to make changes without further notice to any products herein. Freescale Semiconductor makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose, nor does Freescale Semiconductor assume any liability arising out of the application or use of any product or circuit, and specifically disclaims any and all liability, including without limitation consequential or incidental damages. "Typical" parameters which may be provided in Freescale Semiconductor data sheets and/or specifications can and do vary in different applications and actual performance may vary over time. All operating parameters, including "Typicals" must be validated for each customer application by customer's technical experts. Freescale Semiconductor does not convey any license under its patent rights nor the rights of others. Freescale Semiconductor products are not designed, intended, or authorized for use as components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any other application in which the failure of the Freescale Semiconductor product could create a situation where personal injury or death may occur. Should Buyer purchase or use Freescale Semiconductor products for any such unintended or unauthorized application, Buyer shall indemnify and hold Freescale Semiconductor and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fees arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Freescale Semiconductor was negligent regarding the design or manufacture of the part.

Freescale™ and the Freescale logo are trademarks of Freescale Semiconductor, Inc. The Power Architecture and Power.org word marks and the Power and Power.org logos and related marks are trademarks and service marks licensed by Power.org. IEEE 802.3, 802.11i, and 1149.1 are trademarks or registered trademarks of the Institute of Electrical and Electronics Engineers, Inc. (IEEE). This product is not endorsed or approved by the IEEE. All other product or service names are the property of their respective owners.

© Freescale Semiconductor, Inc., 2003–2007. All rights reserved.

