zilog®

White Paper

AMD/Zilog Serial Communications Controller (Z85C30) Comparisons

WP000203-0608

Introduction

Zilog's serial communications controller (SCC) family is pin compatible to AMD's AM85C30 with some minor differences. This White Paper provides information about these differences based upon *Z85C30 Product Specification (PS0117)* and Data Sheets of AM85C30 parts. It helps you to implement Zilog® solution into the AMD socket based on these differences and also compares the part number range.

▶ **Note:** *This document is not a replacement for a thorough systems analysis, data sheet analysis, or bench testing.*

Key difference between Zilog's SCC (Z85C30) and AM85C30 are described under the following headings:

- Access Recovery Time
- Temperature Range
- Operating Voltage
- General Timing
- Read/Write Timing

Access Recovery Time

The access recovery time signal has no phase relationship with $\overline{WR}$ and $\overline{RD}$ but the time must be at least the number of clocks listed in Table 1 regardless of which register or channel is being addressed.

Table 1. Access Recovery Time Signal Differences

Part	Access Recovery Time
Zilog	3
AMD	3 1/2

Temperature Range

The operating temperature ranges currently available are displayed in Table 2.

Table 2. Temperature Range Differences

Part	Temperature Range
Zilog Extended	-40 °C to +100 °C
AMD Industrial	-40 °C to +85 °C

Operating Voltage

Table 3 lists the operating voltage differences.

Table 3. Operating Voltage Differences

Part	Operating Voltage Range
Zilog	-0.3 V to +7.0 V
AMD	-0.5 V to +7.0 V

General Timing

Table 4 lists the general timing differences between the AMD and Zilog® parts in the commercial operating range.

Table 4. General Timing Differences

Part	Parameter Symbol	Timing Specification 16 MHz
Zilog	TwTRXh	180 ns minimum
AMD	TwTRXh	80 ns minimum

Read/Write Timing

Table 5 lists the Read/Write timing differences between the AMD and Zilog parts in commercial operating range.

Table 5. Read/Write Timing Differences

Parameter Symbol	Part	8.5 MHz		10 MHz		16 MHz	
		Max	Min	Max	Min	Max	Min
TfPC	Zilog	10 ns		10 ns		5 ns	
	AMD	15 ns		12 ns		8 ns	
TwPCl	Zilog		45 ns				
	AMD		50 ns				
TrPC	Zilog	10 ns		10 ns		5 ns	
	AMD	15 ns		12 ns		8 ns	

Table 5. Read/Write Timing Differences (Continued)

Parameter Symbol	Part	8.5 MHz		10 MHz		16 MHz	
		Max	Min	Max	Min	Max	Min
TcPC	Zilog		118 ns				
	AMD		122 ns				
TsA(WR)	Zilog		66 ns				
	AMD		70 ns				
TsA(RD)	Zilog		66 ns				
	AMD		70 ns				
TsiAi(WR)	Zilog		140 ns				
	AMD		145 ns				
TsiAi(RD)	Zilog		140 ns				
	AMD		145 ns				
ThIA(PC)	Zilog		38 ns				
	AMD		40 ns				
TsCEh(WR)	Zilog		58 ns				
	AMD		60 ns				
TsCEh(RD)	Zilog		58 ns				
	AMD		60 ns				
TwRDI	Zilog		145 ns				
	AMD		150 ns				
TdRDI(DR)	Zilog	135 ns					
TdRDf(DR)	AMD	140 ns					
TdRD(DRz)	Zilog	38 ns					
	AMD	40 ns					
TdA(DR)	Zilog	210 ns					
	AMD	220 ns					
TwWRI	Zilog		145 ns				
	AMD		150 ns				

Table 5. Read/Write Timing Differences (Continued)

Parameter Symbol	Part	8.5 MHz		10 MHz		16 MHz	
		Max	Min	Max	Min	Max	Min
TdWR(W)	Zilog	168 ns					
	AMD	170 ns					
TdRD(W)	Zilog	168 ns					
	AMD	170 ns					
TdWRf(REQ)	Zilog	168 ns					
	AMD	170 ns					
TdRDf(REQ)	Zilog	168 ns					
	AMD	170 ns					
TdWRr(REQ)	Zilog	168 ns		100 ns			
	AMD	120 ns		120 ns			
TdPC(INT)	Zilog			320 ns			
	AMD			400 ns			
TdIAi(RD)	Zilog		145 ns		90 ns		
	AMD		150 ns		125 ns		
TwRDA	Zilog		145 ns				
	AMD		150 ns				
TdRDA(DR)	Zilog	135 ns					
	AMD	140 ns					
TdPC(IEO)	Zilog	195 ns					
	AMD	200 ns					
TdRDA(INT)	Zilog	480 ns					
	AMD	450 ns					
TwRES	Zilog		145 ns				
	AMD		150 ns				

Zilog/AMD Part Number

Table 6 lists the Zilog® part numbers equivalent to AMD's along with their descriptions.

Table 6. Zilog/AMD Part Number

AMD Part Number	Zilog Part Number	Description
AM85C30-8PI	Z85C3008PEC or Z8523008PEC	8 MHz PDIP Extended Temperature
AM85C30-8PC	Z85C3008PSC or Z8523008PSC	8 MHz PDIP Standard Temperature
AM85C30-8JI	Z85C3008VEC or Z8523008VEC	8 MHz PLCC Extended Temperature
AM85C30-8JC	Z85C3008VSC or Z8523008VSC	8 MHz PLCC Standard Temperature
AM85C30-10PI	Z85C3010PEC or Z8523010PEC	10 MHz PDIP Extended Temperature
AM85C30-10PC	Z85C3010PSC or Z8523010PSC	10 MHz PDIP Standard Temperature
AM85C30-10JI	Z85C3010VEC or Z8523010VEC	10 MHz PLCC Extended Temperature
AM85C30-10JC	Z85C3010VSC or Z8523010VSC	10 MHz PLCC Standard Temperature
AM85C30-16PI	Z8523016PEC	16 MHz PDIP Extended Temperature
AM85C30-16PC	Z85C3016PSC or Z8523016PSC	16 MHz PDIP Standard Temperature
AM85C30-16JI	Z8523016VEC	16 MHz PLCC Extended Temperature
AM85C30-16JC	Z85C3016VSC or Z8523016VSC	16 MHz PLCC Standard Temperature
AM85C30-20PC	Z8523020PSC	20 MHz PDIP Standard Temperature
AM85C30-20JC	Z8523020VSC	20 MHz PLCC Standard Temperature

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