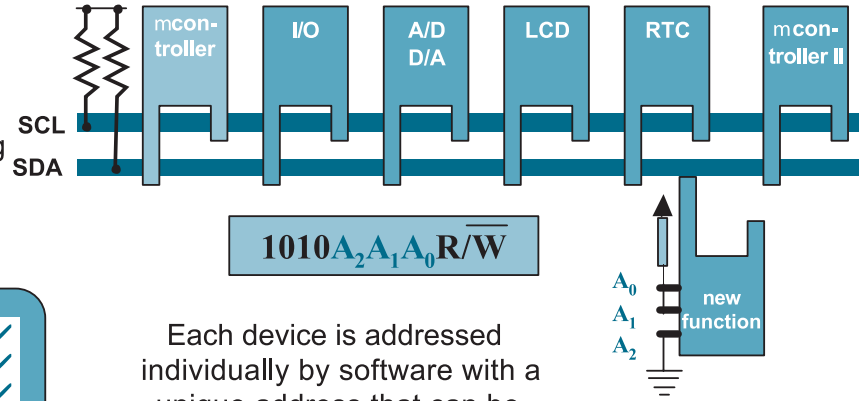
Semiconductors

I²C Bus Solutions

I²C Bus Basics

This universal 2 wire bus, developed by Philips, is a de facto standard for controlling and monitoring applications in computing, communications and industrial segments.



Each device is addressed individually by software with a unique address that can be modified by hardware pins.

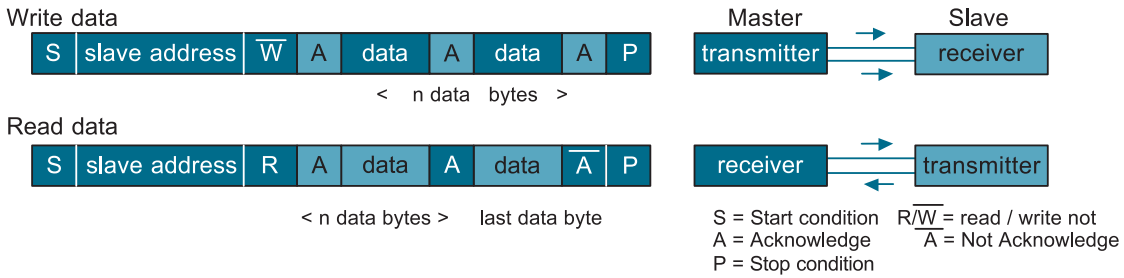
It is the only 2 wire bus where devices are addressed completely by software! This saves PC-board costs and design-in time.

- Easily expandable ✔
- Support from many semiconductor companies ✔
- More than 150 different devices ✔
- Multi master capability e.g. for diagnostics ✔
- Proven applications in *Telecom* market ✔
- Proven in *Industrial* environment ✔
- Used in *Consumer* applications ✔
- Every year new additional products ✔

- I²C-bus handbook, I²C Website: www.semiconductors.philips.com/i2c
- Application notes for GPIOs, RTCs, multiplexers and level shifters.
- Training programs
- Application / design-in support

- Bus speed 100 kHz ✔
- 400 kHz ✔
- 3400 kHz ✔
- V_{DD} range 2.3 - 5.5V ✔
- wiring overhead: low ✔
- power consumption: low ✔ ✔

New devices or functions can be easily clipped on to an existing bus!



Data is transmitted between the master and slave at speeds of 100 kHz, 400 kHz or 3.4 MHz.

The master always sends the clock signal.

www.philipslogic.com/i2c

PHILIPS

I²C Bus Solutions
I²C Product Summary

Data sheets can be downloaded at www.philipslogic.com/i2c or www.semiconductors.philips.com/i2c

Device	Type of function: I/O EXPANDER (bits)	LED BLINKER (bits)	MUX / LATCH / EEPROM (bits-latched bits-registers)	MUX / SWITCH (In/Out channels)	REPEATER / HUB (In/Out segments)	BUS CONTROLLER	TEMPERATURE SENSOR	VOLTAGE MEASUREMENT	RAM / EEPROM (Kbits)	REAL TIME CLOCK / CALENDER	ANALOG / DIGITAL CONVERTER	LCD DRIVER (segments)	Features: # of ADDRESSES	INTERRUPT (In/Out)	HARDWARE RESET	CURRENT (per bit/total mA)	Vcc RANGE (V): 1.0	1.8	2.5	3.3	5	5V TOLERANT	FREQ (kHz): 100	400	TEMP (°C): 0 to 70	- 40 to 85	- 55 to 125	PIN COUNT	PACKAGES: DIP	SO (narrow)	SO (wide)	SSOP	QSOP	TSSOP	HVQFN
LM75A							2°C						8	0-1						●	●		●	●			●	8		D				DP	
NE1617A							3°C						9							●	●	●	●			0 to 125		16					DS		
NE1618							1°C						9							●		●	●			0 to 125		16					DS		
NE1619							3°	●					2							●	●	●	●	●		0 to 125		16					DS		
OM4085												96	16					2	●	●	●	●	●			●		40			VSO40				
P82B715					●								NA								●	●	●			●		8	PN	TD					
P82B96					●								NA						●	●	●	●	●			●		8	PN	TD					
PCA8550			4-1-1										1							●		●	●	●	●			16		D		DB		PW	
PCA8581C									1				8						●	●	●	●	●			-25 to 85		8	PN	TD					
PCA9500	8								2				2-8			25-100				●		●	●	●		●		16			D			PW	BS
PCA9501	8								2				2-64	8-1		25-100				●	●		●	●		●		20						PW	BS
PCA9511					1-1								NA							●		●	●	●		●		8		D				DP	
PCA9515					1-1								NA							●		●	●	●		●		8		D				DP	
PCA9516					1-4								NA							●		●	●	●		●		16		D				PW	
PCA9518					1-4								NA							●		●	●	●		●		20			D			PW	
PCA9540				1-2									1						●	●	●	●	●	●		●		8		D				DP	
PCA9542				1-2									8	2-1					●	●	●	●	●	●		●		14		D				PW	
PCA9543				1-2									4	2-1	●				●	●	●	●	●	●		●		14		D				PW	
PCA9544				1-4									8	4-1					●	●	●	●	●	●		●		20			D			PW	BS
PCA9545				1-4									4	4-1	●				●	●	●	●	●	●		●		20			D			PW	BS
PCA9546				1-4									8		●				●	●	●	●	●	●		●		16		D				PW	
PCA9548				1-8									8		●				●	●	●	●	●	●		●		24			D			PW	BS
PCA9550		2											2		●	25-50			●	●	●	●	●	●		●		8		D				DP	
PCA9551		8											8		●	25-100			●	●	●	●	●	●		●		16		D				PW	BS
PCA9552		16											8		●	25-200			●	●	●	●	●	●		●		24			D			PW	BS
PCA9553		4											2			25-100			●	●	●	●	●	●		●		8		D	D			DP	
PCA9534/54/54A	8												8	8-1		25-100			●	●	●	●	●	●		●		16			D	DB		PW	BS
PCA9535/55	16												8	16-1		25-200			●	●	●	●	●	●		●		24			D	DB		PW	BS
PCA9556	8												8		●	20-80				●	●		●		●			16						PW	
PCA9557	8												8		●	25-100			●	●	●	●	●	●		●		16		D				PW	BS
PCA9558	8		5-1-1						2				2			25-100				●		●	●	●	●			28						PW	
PCA9559			5-1-1										4			20-80				●		●	●	●	●			20						PW	
PCA9560			5-1-2										4			25-100				●		●	●	●	●			20			D			PW	
PCA9561			6-0-4										4			25-100				●		●	●	●	●			20			D			PW	
PCA9564						●							128	0-1	●				●	●		●	●	●		●		20			D			PW	BS
PCF2113												24 ch	2					●	●	●	●	●	●	●		●		100			LQFP100				
PCF85102C-2									2				8						●	●	●	●	●			●		8	N	D					
PCF85103C-2									2				8						●	●	●	●	●			●		8	N	D					
PCF85116-3									16				8							●	●	●	●	●		●		8	N	D					
PCF8563										●			1	0-1			●	●	●	●	●	●	●	●		●		8	PN		TD			DP	
PCF8566												96	16						●	●	●	●	●			●		40	PN		VSO40				
PCF8570									2				8						●	●	●	●	●			●		8	PN	TD					
PCF8573										●			4				1.1	●	●	●	●	●	●			●		16	PN		TD				
PCF8574/74A	8												4	0-1		20-100			●	●	●	●	●			●		16	PN		TD	TDK			
PCF8575	16												8	0-1		20-100			●	●	●	●	●	●		●		24				TSDB			
PCF8576C												160	16						●	●	●	●	●			●		56/64			VSO56/LQFP64				
PCF8577C												64	16						●	●	●	●	●			●		40	PN		VSO40				
PCF8578/79												384	2						●	●	●	●	●			●		56/64			VSO56/LQFP64				
PCF8582C-2									2				8						●	●	●	●	●			●		8	N	D					
PCF8583									2	●			2	0-1			●	●	●	●	●	●	●			●		8	PN	TD					
PCF8584						●							128	0-1	●						●	●	●			●		20	PN		TD				
PCF8591											8		8						●	●	●	●	●			●		16	PN		TD				
PCF8593										●			1	0-1	●		●	●	●	●	●	●	●			●		8	N		TD				
PCF8594C-2									4				8						●	●	●	●	●			●		8	N	D					
PCF8598C-2									8				8						●	●	●	●	●			●		8	N		D				
SAA1064		4 x 8											4			21 - mA					●	●	●			●		24	P	T					

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