

Smart, simple solutions for the 12 most common design concerns

NXP I²C-bus solutions 2H 2011



I²C-bus: The serial revolution

By replacing complex parallel interfaces with a straightforward yet powerful serial structure, the I²C-bus revolutionized chip-to-chip communications.

Invented by NXP (Philips) more than 30 years ago, the I²C-bus uses a simple two-wire format to carry data one bit at a time. It performs inter-chip addressing, selection, control, and data transfer. Speeds are up to 400 kHz (Fast-mode), 1 MHz (Fast-mode Plus), 3.4 MHz (High Speed-mode), or 5 MHz (Ultra Fast-mode).



Parallel Interface

I²C Serial Interface

The I²C-bus shrinks the IC footprint and leads to lower IC costs. Plus, since far fewer copper traces are needed, it enables a smaller PCB, reduces design complexity, and lowers system cost.



I²C-bus devices are available in a wide range of functions. Each slave device has its own I²C-bus address, selectable using address pins set high (1) or low (0). Information is transmitted byte by byte, and each byte is acknowledged by the receiver. There can be multiple devices on the same bus, and more than one IC can act as master. The master role is typically played by a microcontroller.



NXP's I²C peripherals portfolio is grouped into twelve families, one for each of the most common, everyday design concerns.



www.nxp.com/interface

I²C-bus product summary

		,	
GPIO Expander	Z		Stepper N Controller
A 1 1	PCA9536	4-bit I ² C Fm TP GPIO with PU	1 motor cor
4-bit	PCA9537	4-bit I ² C Fm TP GPIO with INT and RST	
	PCA8574	8-bit I ² C Fm QB GPIO with INT and PU	Capacitive
	PCA8574A	8-bit I ² C Fm QB GPIO with INT and PU (Alternate address)	
	PCA9500	8-bit I ² C Fm QB GPIO with PU and 2-K EEPROM	8-channel t
	PCA9501	8-bit I ² C Fm QB GPIO with INT, PU and 2-K EEPROM	
	PCA9502	8-bit I ² C Fm/SPI TP GPIO with INT and RST	Temp sense
	PCA9534	8-bit I ² C Fm TP GPIO with INT	
	+ PCA9538	8-bit I ² C Fm TP GPIO with INT and RST	
	+ PCA9554	8-bit I ² C Fm TP GPIO with INT and PU	Local
	PCA9554A	8-bit I ² C Fm TP GPIO with INT and PU (Alternate address)	
8-bit	PCA9557	8-bit I ² C Fm TP GPIO with RST	
	PCA9574	8-bit I ² C Fm LV VLT TP/OD GPIO with INT, RST, latch and PU/PD	Local and EE ROM
	PCA9621	8-bit I ² C Fm+ 65 mA OD GPO with RST	KOWI
	PCA9670	8-bit I ² C Fm+ QB GPIO with RST and PU	Local and re
	PCA9672	8-bit I ² C Fm+ QB GPIO with INT, RST and PU	
	PCA9674	8-bit I ² C Fm+ QB GPIO with INT and PU	Local, remot and voltage
	PCA9674A	8-bit I ² C Fm+ QB GPIO with INT and PU (Alternate address)	monitor
	PCF8574	8-bit I ² C Sm QB GPIO with INT and PU	
	PCF8574A	8-bit I ² C Sm QB GPIO with INT and PU (Alternate address)	LED controlle
	PCA6416A	16-bit I ² C Fm LV VLT TP GPIO with INT and RST	
	PCA8575	16-bit I ² C Fm QB GPIO with INT and PU	Dimmer (2 PWM,
	PCA9535	16-bit I ² C Fm TP GPIO with INT	25 mA / 5 V)
	PCA9535A	16-bit I ² C Fm LV TP GPIO with INT	
	PCA9535C	16-bit I ² C Fm OD GPIO with INT	Blinker
	+ PCA9539	16-bit I ² C Fm TP GPIO with INT and RST	(2 PWM, 25 mA /
	PCA9539A	16-bit I ² C Fm LV TP GPIO with INT and RST	5 V)
	PCA9539R	16-bit I ² C Fm TP GPIO with INT and RST (state machine only)	8-segment
	PCA9555	16-bit I ² C Fm TP GPIO with INT and PU	o segment
	PCA9555A	16-bit I ² C Fm LV TP GPIO with INT and PU	
16-bit	PCA9575	16-bit I ² C Fm LV VLT TP/OD GPIO with INT, RST, latch and PU/PD	Controller (PWM / Ch,
	PCA9671	16-bit I ² C Fm+ QB GPIO with RST and PU	25 mA / 5 V)
	PCA9673	16-bit I ² C Fm+ QB GPIO with INT, RST and PU	
	PCA9675	16-bit I²C Fm+ QB GPIO with INT and PU	
	PCA- L6416A	16-bit I ² C Fm LV VLT TP/OD GPIO with INT, RST, latch and PU/PD	Controller (PWM / Ch,
	PCA- L9535A	16-bit I ² C Fm LV TP/OD GPIO with INT, latch and PU/PD	57 mA / 40 \
	PCA- L9539A	16-bit I ² C Fm LV TP/OD GPIO with INT, RST, latch and PU/PD	
	PCA- L9555A	16-bit I ² C Fm LV TP/OD GPIO with INT, latch and PU/PD (PU default)	Courte II
	PCF8575	16-bit I ² C Fm QB GPIO with INT and PU	Controller (PWM / Ch,
	PCF8575C	16-bit I ² C Fm OD GPIO with INT	100 mA / 40 V)
	PCA9505	40-bit I ² C Fm TP GPIO with INT, RST, OE and PU	
40-bit	PCA9506	40-bit I ² C Fm TP GPIO with INT, RST and OE	
	PCA9698	40-bit I ² C Fm+ TP/OD GPIO with INT, RST, OE and PU	LED flash

Stepper Motor Controller			
1 motor controller	PCA9629 I ² C F GPIC		n+ Stepper Motor Controller with TP with INT and RST
Capacitive Sensor			
8-channel touch switch	+ PCA/PCF8885		I ² C FM Touch / Proximity Sensor for up to 28 keys

	Temp sensors		
		LM75A	$\rm I^2C~Fm~TS$ local with ± 2 °C accuracy
		LM75B	$\rm I^2C$ Fm TS local with \pm 2 °C accuracy and SMBus time-out
	Local	SE95	$\rm I^2C~Fm~TS$ local with ± 1 °C accuracy
		SE98A	^{I2}C Fm DDR TS local with \pm 1 $^{\circ}C$ accuracy and SMBus time-out
	Local and EEP- ROM	SE97B	^{12}C Fm DDR TS local with \pm 1 $^{\circ}\text{C}$ accuracy, 2K SPD and SMBus time-out
	Local and remote	NE1617A	$\rm I^2C$ Fm TS local with \pm 2 °C accuracy and remote with \pm 3 °C accuracy
		SA56004	$\rm I^2C$ Fm TS local with ± 2 °C accuracy and remote with ± 1 °C accuracy
	Local, remote, and voltage monitor	NE1619	I ² C Fm TS local with ± 2 °C accuracy and remote with ± 3 °C accuracy with voltage monitor w(12, 5, 3.3, and 2.5 V, V _{CCP} and V _{DD})

LED controllers	*	
	PCA9530	2-channel I ² C Fm OD LED dimmer with RST
Dimmer (2 PWM,	PCA9531	8-channel I ² C Fm OD LED dimmer with RST
25 mA / 5 V)	PCA9532	16-channel I ² C Fm OD LED dimmer with RST
	PCA9533	4-channel I ² C Fm OD LED dimmer
	PCA9550	2-channel I ² C Fm OD LED blinker with RST
Blinker (2 PWM,	PCA9551	8-channel I ² C Fm OD LED blinker with RST
25 mA / 5 V)	PCA9552	16-channel I²C Fm OD LED blinker with RST
	PCA9553	4-channel I ² C Fm OD LED blinker
8-segment	SAA1064	16-channel I²C Sm current source/sink 4x8- segment LED display
	PCA9632	4-channel I ² C Fm+ low-power TP LED controller
Controller	PCA9633	4-channel I ² C Fm+ TP LED controller with OE
(PWM / Ch, 25 mA /	PCA9634	8-channel I ² C Fm+ TP LED controller with OE
5 V)	+ PCA9635	16-channel I^2C Fm+ TP LED controller with OE
	+ PCA9685	16-channel I²C Fm+ TP LED controller with 12-bit PWMs and OE $% \left({\frac{{{\left[{{C_{\rm{B}}} \right]}}}{{\left[{{C_{\rm{B}}} \right]}}}} \right)$
Controller	PCA9952	16-channel I ² C Fm+ HV CS LED controller with OE
(PWM / Ch, 57 mA / 40 V)	PCA9955	16-channel I ² C Fm+ HV CS LED controller
57 mA 7 40 V)	PCU9955	16-channel I ² C UFm HV CS LED controller
	PCA9624	8-channel I ² C Fm+ HV OD LED controller with OE
	PCA9622	16-channel I ² C Fm+ HV OD LED controller with OE
Controller (PWM / Ch,	PCA9626	24-channel I ² C Fm+ HV OD LED controller with OE
100 mA / 40 V)	PCU9654	8-channel I ² C UFm HV OD LED controller with OE
	PCU9655	16-channel I ² C UFm HV OD LED controller
	PCU9656	24-channel I ² C UFm HV OD LED controller with OE
LED flash	SSL3250A	$\rm I^2C\ Fm\ 500\ mA\ sink\ dual\ LED\ flash\ with\ torch\ mode$
	SSL3252	$\rm I^2C\ Fm\ 500\ mA$ source dual LED flash with torch mode

Real-time clocks		
	PCA8802	I ² C Fm RTC for One Time Password genera- tion and smart cards
Low-power	PCF8523	I ² C Fm+ Ultra low-power RTC with loss of main power detect and auto battery switch over
	PCF8563	I²C Fm Ultra low-power clock/calendar
	PCF8564A	I²C Fm Ultra low-power clock/calendar and COB
	+ PCA8565	I²C Fm High temperature clock/calendar -40°C+125°C
Normal	PCF8583	I²C Sm Clock/calendar resolution: 0.01 s, with 256x8 SRAM
	PCF8593	I²C Sm Low-power clock/calendar resolution: 0.01 s
Temp-compen-	PCF2127A	I ² C Fm High-accuracy, low-voltage RTC with 512x8 RAM
sated	+ PCA/PCF2129(A)	I ² C Fm High-accuracy RTC

Muxes and switches			
	PCA9540B	2-channel I²C Fm mux	
2-channel	PCA9542A	2-channel I ² C Fm mux with INT	
	PCA9543A/B/C	2-channel I ² C Fm switch with INT and RST (B and C Alternate address)	
2-to-1 demux	PCA9541A/01	2 to 1 I ² C Fm demux with INT and RST (channel 0 default)	
2-to-1 demux	PCA9541A/03	2 to 1 I ² C Fm demux with INT and RST (no channel default)	
	PCA9544A	4-channel I ² C Fm mux with INT	
4-channel	PCA9545A/B/C	4-channel I ² C Fm switch with INT and RST (B and C Alternate address)	
4-channel	PCA9546A	4-channel I2C Fm switch with RST	
	PCA9646	4-channel I²C Fm+ No Offset buffer/switch with RST	
8-channel	PCA9547	8-channel I ² C Fm mux with RST (channel 0 default)	
ö-channel	PCA9548A	8-channel I ² C Fm switch with RST	

PCA9514APC Fm Incremental Offset hot-swap bus buffer (0.8 V offset)PCA9521PC Fm (1 MH2) HV Incremental Offset bus bufferPCA9522PC Fm (1 MH2) HV Incremental Offset hot-swap bus bufferAmplifierP82B715PC Fm (1 MH2) HV Incremental Offset hot-swap bus bufferNo OffsetPCA9525PC Fm (1 MH2) No Offset bus repeaterNo OffsetPCA9507PC Fm HV bus extenderPCA9507PC Fm HV bus bufferPCA9508PC Fm VLT DDC buffer with acceleratorPCA9509PC Fm ULT DDC buffer with acceleratorPCA9509PC Fm 0.8V LV VLT bus buffer with current sourcePCA9509PC Fm 0.8V LV VLT bus buffer with current sourcePCA9509PC Fm 0.8V LV VLT bus buffer with current sourcePCA9509PC Fm 0.8V LV VLT bus bufferPCA9509PC Fm 0.8V LV VLT bus bufferPCA9517APC Fm DDC VLT buffer with accelerator and CECPCA95194-channel version of PCA9509PCA9519PC Fm DDC VLT buffer with accelerator and CECPCA9600PC Fm HV bus bufferPCA9513APC Fm bus repeaterPCA9601PC Fm bus repeaterPCA9602PC Fm HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesStatic Offset (All sides)PCA9515APC Fm bus repeaterPCA9515APC Fm bus repeaterPCA9514PC Fm expandable 5-channel hubPCA9514PC Fm expandable 5-channel hubPCA9518APC Fm + VLTGTL20038-bit PC Fm+ VLTGTL201010-bit PC Fm+ VLT <th>Bus buffers</th> <th colspan="2"></th>	Bus buffers		
PCA9512BPC Fm Incremental Offset VLT hot swap bus buffer (%2 µA CS)PCA9513APC Fm Incremental Offset hot-swap bus buffer (%2 µA CS)PCA9514APC Fm Incremental Offset hot-swap bus buffer (%2 µA CS)PCA9521PC Fm (1 MH2) HV Incremental Offset hot-swap bus bufferPCA9522PC Fm (1 MH2) HV Incremental Offset hot-swap bus bufferAmplifierP82B715PC Fm (1 MH2) HV Incremental Offset hot-swap bus bufferNo OffsetPC Fm (1 MH2) NO Offset bus repeaterPCA9505PC Fm (1 MH2) NO Offset bus repeaterPCA9505PC Fm HV bus bufferPCA9507PC Fm VLT DDC buffer with acceleratorPCA9508PC Fm VLT hot-swap bus repeaterPCA9509PC Fm 1.0V LV VLT bus buffer with current sourcePCA9509PC Fm 0.8V LV VLT bus bufferPCA9509PC Fm 0.8V LV VLT bus bufferPCA9509PC Fm 0.9V LV VLT bus bufferPCA9517APC Fm 0.9V LV VLT bus bufferPCA9517APC Fm D.0V LV VLT bus bufferPCA9517PC Fm HV bus bufferPCA9517PC Fm HV bus bufferPCA9517PC Fm D.0V LV VLT buffer with accelerator and CECPCA95194-channel version of PCA9509PCA9514PC Fm HV bus buffer with stronger 15 mA local sideAfrice to support multiple Fm + slavesStatic Offset (All sides)PCA9515APC Fm Expandable 5-channel hubPCA951APC Fm Expandable 5-channel hubPCA951APC Fm + VLTGTL2002-bit PC Fm + VLTGTL2002-bit PC Fm + VLTN		PCA9510A	I ² C Fm Incremental Offset hot-swap bus buffer (no RTA)
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No OffsetPCA9525FC Fm (1 MH2) No Offset bus repeaterPCA9605FC Fm + No Offset bus repeaterPCA9605FC Fm HV bus bufferPCA9507FC Fm VLT DDC buffer with acceleratorPCA9508FC Fm VLT bot-swap bus repeaterPCA9509FC Fm 1.0V LV VLT bus buffer with current sourcePCA9509FC Fm 0.8V LV VLT bus buffer with current sourcePCA9509FC Fm 0.8V LV VLT bus bufferPCA9509FC Fm 0.8V LV VLT bus bufferPCA9517AFC Fm 0.9V LV VLT bus bufferPCA9517FC Fm D.0V LV buffer with accelerator and CECPCA9600FC Fm HV bus bufferPCA9601FC Fm HV bus bufferPCA9601FC Fm thV bus bufferPCA9515AFC Fm bus repeaterPCA9516AFC Fm schannel hubPCA9516AFC Fm thV bus bufferPCA9516AFC Fm thV LTGTL20022-bit I²C Fm + VLTGTL20110-bit I²C Fm + VLTGTL20110-bit I²C Fm + VLTPCA9306Dual I²C/SMBus Fm + VLTNVT20011-bit I²C Fm + VLT for I²C/SMBus applicationsNVT20033-bit I²C Fm + VLT for SPI applicationsNVT20044-bit I²C Fm + VLTNVT20056-bit I²C Fm + VLTNVT20066-bit I²C Fm + VLTNVT20078-bit I²C Fm + VLTNVT20088-bit I²C Fm + VLT <td></td> <td>PCA9522</td> <td></td>		PCA9522	
No OffsetPCA9605I?C Fm + No Offset bus repeaterP82B96I?C Fm HV bus bufferPCA9507I?C Fm VLT DDC buffer with acceleratorPCA9508I?C Fm VLT DDC buffer with acceleratorPCA9509I?C Fm ULT hot-swap bus repeaterPCA9509I?C Fm 0.8V LV VLT bus buffer with current sourcePCA9509I?C Fm 0.8V LV VLT bus buffer with current sourcePCA9509AI?C Fm 0.8V LV VLT bus buffer with current sourcePCA9509PI?C Fm 0.8V LV VLT bus bufferPCA9517AI?C Fm 0.9V LV VLT bus bufferPCA9517AI?C Fm DDC VLT buffer with accelerator and CECPCA9600I?C Fm + HV bus bufferPCA9601I?C Fm + HV bus bufferPCA9600I?C Fm + HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesStatic Offset (All sides)PCA9515APCA9515AI?C Fm bus repeaterPCA9516AI?C Fm expandable 5-channel hubPCA9518AI?C Fm + VLTGTL200022-bit I?C Fm+ VLTGTL201010-bit I?C Fm+ VLTGTL201010-bit I?C Fm+ VLTGTL201010-bit I?C Fm+ VLTPCA9306Dual I?C/SMBus Fm+ VLTNVT20011-bit I?C Fm+ VLT for I?C/SMBus applicationsNVT20022-bit I?C Fm+ VLT for IPC/SMBus applicationsNVT20044-bit I?C Fm+ VLTNVT20044-bit I?C Fm+ VLTNVT20066-bit I?C Fm+ VLTNVT20066-bit I?C Fm+ VLTNVT20066-bit I?C Fm+ VLTNVT20088-bit I?C Fm+ VLT	Amplifier	P82B715	I²C Fm HV bus extender
PCA9605I²C Fm + No Offset bus repeaterP82B96I²C Fm HV bus bufferPCA9507I²C Fm VLT DDC buffer with acceleratorPCA9508I²C Fm VLT bot-swap bus repeaterPCA9509I²C Fm 1.0V LV VLT bus buffer with current sourcePCA9509I²C Fm 0.8V LV VLT bus buffer with current sourcePCA9509I²C Fm 0.8V LV VLT bus buffer with current sourcePCA9509PI²C Fm 0.8V LV VLT bus bufferPCA9517AI²C Fm 0.8V LV VLT bus repeaterPCA9517I²C Fm 0.9V LV VLT bus repeaterPCA9517I²C Fm DDC VLT buffer with accelerator and CECPCA9600I²C Fm + HV bus bufferPCA9601I²C Fm + HV bus buffer with stronger 15 mA local side drive to support multiple Fm + slavesStatic Offset (All sides)I²C Fm 5-channel hubPCA9515AI²C Fm bus repeaterPCA9518AI²C Fm expandable 5-channel hubPCA9518AI²C Fm + VLTGTL20022-bit I²C Fm + VLTGTL201010-bit I²C Fm + VLTGTL201010-bit I²C Fm + VLTPCA9306Dual I²C/SMBus Fm + VLTNVT20011-bit I²C Fm + VLTNVT20022-bit I²C Fm + VLT for I²C/SMBus applicationsNVT20033-bit I²C Fm + VLT for SPI applicationsNVT20044-bit I²C Fm + VLTNVT20056-bit I²C Fm + VLTNVT20066-bit I²C Fm + VLT	No Offerst	PCA9525	I ² C Fm (1 MHz) No Offset bus repeater
PCA9507IPC Fm VLT DDC buffer with acceleratorPCA9508IPC Fm VLT hot-swap bus repeaterPCA9509IPC Fm 1.0V LV VLT bus buffer with current sourcePCA9509IPC Fm 0.8V LV VLT bus buffer with current sourcePCA9509AIPC Fm 0.8V LV VLT bus bufferPCA9509AIPC Fm 0.8V LV VLT bus bufferPCA9509PIPC Fm 0.8V LV VLT bus bufferPCA9517AIPC Fm 0.9V LV VLT bus repeaterPCA9517AIPC Fm DDC VLT buffer with accelerator and CECPCA9500IPC Fm + HV bus bufferPCA9600IPC Fm + HV bus buffer with stronger 15 mA local side drive to support multiple Fm + slavesStatic Offset (All sides)PCA9515APCA9515AIPC Fm bus repeaterPCA9516AIPC Fm schannel hubPCA9518AIPC Fm expandable 5-channel hubPCA9518AIPC Fm + VLTGTL20022-bit IPC Fm + VLTGTL201010-bit IPC Fm + VLTGTL201010-bit IPC Fm + VLTPCA9306Dual IPC/SMBus Fm + VLTNVT20111-bit IPC Fm + VLT for IPC/SMBus applicationsNVT20222-bit IPC Fm + VLT for two power supply applicationsNVT20044-bit IPC Fm + VLT for SPI applicationsNVT20066-bit IPC Fm + VLTNVT20066-bit IPC Fm + VLT	No Offset	PCA9605	I ² C Fm+ No Offset bus repeater
PCA9508IPC Fm VLT hot-swap bus repeaterPCA9509IPC Fm 1.0V LV VLT bus buffer with current sourcePCA9509AIPC Fm 0.8V LV VLT bus buffer with current sourcePCA9509PIPC Fm 0.8V LV VLT bus bufferPCA9509PIPC Fm 0.8V LV VLT bus bufferPCA9517AIPC Fm 0.9V LV VLT bus repeaterPCA9517AIPC Fm DDC VLT buffer with accelerator and CECPCA9500IPC Fm + HV bus bufferPCA9600IPC Fm + HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesPCA9601IPC Fm 5-channel hubPCA9515AIPC Fm 5-channel hubPCA9516AIPC Fm expandable 5-channel hubPCA9518AIPC Fm + VLTGTL20022-bit IPC Fm+ VLTGTL201010-bit IPC Fm+ VLTGTL201010-bit IPC Fm+ VLTPCA9306Dual IPC/SMBus Fm+ VLTNVT20011-bit IPC Fm+ VLT for IPC/SMBus applicationsNVT20033-bit IPC Fm+ VLT for IPC/SMBus applicationsNVT20044-bit IPC Fm+ VLTNVT20044-bit IPC Fm+ VLTNVT20046-bit IPC Fm+ VLTNVT20046-bit IPC Fm+ VLTNVT20046-bit IPC Fm+ VLTNVT20046-bit IPC Fm+ VLTNVT20056-bit IPC Fm+ VLTNVT20066-bit IPC Fm+ VLT </td <td></td> <td>P82B96</td> <td>I²C Fm HV bus buffer</td>		P82B96	I²C Fm HV bus buffer
Static Offset [1 side]PCA9509I?C Fm 1.0V LV VLT bus buffer with current sourcePCA9509AI?C Fm 0.8V LV VLT bus buffer with current sourcePCA9509PI?C Fm 0.8V LV VLT bus bufferPCA9509PI?C Fm 0.8V LV VLT bus bufferPCA9517AI?C Fm 0.9V LV VLT bus repeaterPCA9517AI?C Fm D.C VLT buffer with accelerator and CECPCA9517I?C Fm DDC VLT buffer with accelerator and CECPCA9600I?C Fm + HV bus bufferPCA9601I?C Fm + HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesStatic Offset (All sides)PCA9515APCA9515AI?C Fm bus repeaterPCA9516AI?C Fm expandable 5-channel hubPCA9518AI?C Fm + VLTGTL200222-bit I?C Fm+ VLTGTL201010-bit I?C Fm+ VLTGTL201010-bit I?C Fm+ VLTPCA9306Dual I?C/SMBus Fm+ VLTNVT20111-bit I?C Fm+ VLT for I?C/SMBus applicationsNVT20022-bit I?C Fm+ VLT for I?C/SMBus applicationsNVT20033-bit I?C Fm+ VLT for SPI applicationsNVT20044-bit I?C Fm+ VLTNVT20066-bit I?C Fm+ VLTNVT20088-bit I?C Fm+ VLT		PCA9507	I ² C Fm VLT DDC buffer with accelerator
Static Offset (1 side)PCA9509AIPC Fm 0.8V LV VLT bus buffer with current sourcePCA9509PIPC Fm 0.8V LV VLT bus bufferPCA9517AIPC Fm 0.9V LV VLT bus repeaterPCA9517AIPC Fm 0.9V LV VLT bus repeaterPCA9517IPC Fm DDC VLT buffer with accelerator and CECPCA9600IPC Fm + HV bus bufferPCA9601IPC Fm + HV bus buffer with stronger 15 mA local side drive to support multiple Fm + slavesStatic Offset (All sides)PCA9515APCA9515AIPC Fm S-channel hubPCA9516AIPC Fm expandable 5-channel hubPCA9518AIPC Fm expandable 5-channel hubPCA9518AIPC Fm + VLTGTL20022-bit IPC Fm + VLTGTL201010-bit IPC Fm + VLTGTL201010-bit IPC Fm + VLTPCA9306Dual IPC/SMBus Fm + VLTNVT20011-bit IPC Fm + VLT for IPC/SMBus applicationsNVT20033-bit IPC Fm + VLT for rec/SMBus applicationsNVT20044-bit IPC Fm + VLTNVT20056-bit IPC Fm + VLTNVT20066-bit IPC Fm + VLTNVT20078-bit IPC Fm + VLTNVT20088-bit IPC Fm + VLT		PCA9508	I ² C Fm VLT hot-swap bus repeater
Static Offset (1 side)PCA9509PIPC Fm 0.8V LV VLT bus bufferPCA9517AIPC Fm 0.9V LV VLT bus repeaterPCA9517AIPC Fm 0.9V LV VLT bus repeaterPCA9517P4-channel version of PCA9509PCA9527IPC Fm DDC VLT buffer with accelerator and CECPCA9600IPC Fm+ HV bus bufferPCA9601IPC Fm+ HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesStatic Offset (All sides)PCA9515APCA9515AIPC Fm bus repeaterPCA9516AIPC Fm s-channel hubPCA9518AIPC Fm expandable 5-channel hubPCA9518AIPC Fm t VLTGTL20022-bit IPC Fm+ VLTGTL201010-bit IPC Fm+ VLTGTL201010-bit IPC Fm+ VLTPCA9306Dual IPC/SMBus Fm+ VLTNVT20011-bit IPC Fm+ VLTNVT20022-bit IPC Fm+ VLT for IPC/SMBus applicationsNVT20033-bit IPC Fm+ VLT for VD power supply applicationsNVT20044-bit IPC Fm+ VLTNVT20056-bit IPC Fm+ VLTNVT20066-bit IPC Fm+ VLTNVT20088-bit IPC Fm+ VLT		PCA9509	I ² C Fm 1.0V LV VLT bus buffer with current source
(1 side) PC R00.01 PC In 0.01 PC 10 00 00 10 10 10 00 10 10 10 00 00 10 1		PCA9509A	I ² C Fm 0.8V LV VLT bus buffer with current source
PCA9517APC Fm 0.9V LV VLT bus repeaterPCA95194-channel version of PCA9509PCA9527I²C Fm DDC VLT buffer with accelerator and CECPCA9600I²C Fm+ HV bus bufferPCA9601I²C Fm+ HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesPCA9515AI²C Fm Em HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesStatic Offset (All sides)PCA9515AI?C Fm Expandable 5-channel hubPCA9518AI²C Fm expandable 5-channel hubPCA9518AI²C Fm + VLTGTL200222-bit I²C Fm+ VLTGTL20138-bit I²C Fm+ VLTGTL201010-bit I²C Fm+ VLTGTL201010-bit I²C Fm+ VLTPCA9306Dual I²C/SMBus Fm+ VLTNVT20011-bit I²C Fm+ VLTNVT20022-bit I²C Fm+ VLT for I²C/SMBus applicationsNVT20033-bit I²C Fm+ VLT for I²C/SMBus applicationsNVT20044-bit I²C Fm+ VLT for SPI applicationsNVT20066-bit I²C Fm+ VLTNVT20088-bit I²C Fm+ VLT	Static Offset	PCA9509P	I²C Fm 0.8V LV VLT bus buffer
PCA9527I²C Fm DDC VLT buffer with accelerator and CECPCA9600I²C Fm+ HV bus bufferPCA9601I²C Fm+ HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesStatic Offset (All sides)PCA9515AI²C Fm bus repeaterPCA9518AI²C Fm 5-channel hubPCA9518AI²C Fm expandable 5-channel hubPCA9518AI²C Fm + VLTGTL20022-bit I²C Fm+ VLTGTL20138-bit I²C Fm+ VLTGTL201410-bit I²C Fm+ VLTGTL201510-bit I²C Fm+ VLTPCA9306Dual I²C/SMBus Fm+ VLTNVT20111-bit I²C Fm+ VLTNVT20222-bit I²C Fm+ VLT for I²C/SMBus applicationsNVT2033-bit I²C Fm+ VLT for two power supply applicationsNVT2044-bit I²C Fm+ VLT for SPI applicationsNVT2066-bit I²C Fm+ VLTNVT2088-bit I²C Fm+ VLT	(T side)	PCA9517A	I ² C Fm 0.9V LV VLT bus repeater
PCA9600I²C Fm+ HV bus bufferPCA9601I²C Fm+ HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesStatic Offset (All sides)PCA9515AI²C Fm bus repeaterPCA9516AI²C Fm 5-channel hubPCA9518AI²C Fm expandable 5-channel hubPCA9518AI²C Fm + VLTGTL20022-bit I²C Fm+ VLTGTL201022-bit I²C Fm+ VLTGTL201010-bit I²C Fm+ VLTGTL201010-bit I²C Fm+ VLTPCA9306Dual I²C/SMBus Fm+ VLTPCA9306Dual I²C/SMBus Fm+ VLTNVT20111-bit I²C Fm+ VLT for I²C/SMBus applicationsNVT20222-bit I²C Fm+ VLT for two power supply applicationsNVT20044-bit I²C Fm+ VLT for SPI applicationsNVT20066-bit I²C Fm+ VLTNVT20088-bit I²C Fm+ VLT		PCA9519	4-channel version of PCA9509
PCA9601I²C Fm+ HV bus buffer with stronger 15 mA local side drive to support multiple Fm+ slavesStatic Offset (All sides)PCA9515AI²C Fm bus repeaterPCA9516AI²C Fm 5-channel hubPCA9518AI²C Fm expandable 5-channel hubGTL200022-bit I²C Fm+ VLTGTL201022-bit I²C Fm+ VLTGTL20108-bit I²C Fm+ VLTGTL201010-bit I²C Fm+ VLTPCA9306Dual I²C/SMBus Fm+ VLTNVT20111-bit I²C Fm+ VLTNVT20222-bit I²C Fm+ VLTNVT2033-bit I²C Fm+ VLT for two power supply applicationsNVT2044-bit I²C Fm+ VLT for SPI applicationsNVT2066-bit I²C Fm+ VLTNVT2088-bit I²C Fm+ VLT		PCA9527	I ² C Fm DDC VLT buffer with accelerator and CEC
PCA9601drive to support multiple Fm+ slavesPCA9515AI²C Fm bus repeaterPCA9515AI²C Fm bus repeaterPCA9516AI²C Fm 5-channel hubPCA9518AI²C Fm expandable 5-channel hubPCA9518AI²C Fm expandable 5-channel hubGTL200022-bit I²C Fm+ VLTGTL20102-bit I²C Fm+ VLTGTL20108-bit I²C Fm+ VLTGTL201010-bit I²C Fm+ VLTPCA9306Dual I²C/SMBus Fm+ VLTNVT20011-bit I²C Fm+ VLTNVT20222-bit I²C Fm+ VLT for I²C/SMBus applicationsNVT20333-bit I²C Fm+ VLT for SPI applicationsNVT2044-bit I²C Fm+ VLTNVT20066-bit I²C Fm+ VLTNVT20088-bit I²C Fm+ VLT		PCA9600	I ² C Fm+ HV bus buffer
Static Offset (All sides) PCA9516A I²C Fm 5-channel hub PCA9518A I²C Fm expandable 5-channel hub GTL2000 22-bit I²C Fm + VLT GTL2002 2-bit I²C Fm + VLT GTL2003 8-bit I²C Fm + VLT GTL2010 10-bit I²C Fm + VLT GTL2010 10-bit I²C Fm + VLT PCA9306 Dual I²C/SMBus Fm + VLT PCA9306 Dual I²C/SMBus Fm + VLT NVT2001 1-bit I²C Fm + VLT NVT2002 2-bit I²C Fm + VLT NVT2003 3-bit I²C Fm + VLT for I²C/SMBus applications NVT2004 4-bit I²C Fm + VLT for two power supply applications NVT2006 6-bit I²C Fm + VLT NVT2008 8-bit I²C Fm + VLT		PCA9601	
PCA9516A PC Fm S-channel hub PCA9518A PC Fm spandable 5-channel hub PCA9518A PC Fm expandable 5-channel hub GTL2000 22-bit I ² C Fm + VLT GTL2010 22-bit I ² C Fm + VLT GTL2010 8-bit I ² C Fm + VLT GTL2010 10-bit I ² C Fm + VLT PCA9306 Dual I ² C/SMBus Fm + VLT NVT2001 1-bit I ² C Fm + VLT NVT2002 2-bit I ² C Fm + VLT for I ² C/SMBus applications NVT2003 3-bit I ² C Fm + VLT for VD power supply applications NVT2004 4-bit I ² C Fm + VLT for SPI applications NVT2006 6-bit I ² C Fm + VLT NVT2008 8-bit I ² C Fm + VLT		PCA9515A	I ² C Fm bus repeater
PCA9518AIPC Fm expandable 5-channel hubGTL200022-bit IPC Fm + VLTGTL20022-bit IPC Fm + VLTGTL20038-bit IPC Fm + VLTGTL201010-bit IPC Fm + VLTPCA9306Dual IPC/SMBus Fm + VLTPCA9306Dual IPC/SMBus Fm + VLTNVT20011-bit IPC Fm + VLTNVT20022-bit IPC Fm + VLT for IPC/SMBus applicationsNVT20033-bit IPC Fm + VLT for SPI applicationsNVT20044-bit IPC Fm + VLT for SPI applicationsNVT20058-bit IPC Fm + VLTNVT20066-bit IPC Fm + VLTNVT20088-bit IPC Fm + VLT	Static Offset (All sides)	PCA9516A	I²C Fm 5-channel hub
Voltage translator (doesn't isolate capacitance) GTL2002 2-bit I ² C Fm+ VLT GTL2003 8-bit I ² C Fm+ VLT GTL2010 10-bit I ² C Fm+ VLT PCA9306 Dual I ² C/SMBus Fm+ VLT NVT2001 1-bit I ² C Fm+ VLT NVT2002 2-bit I ² C Fm+ VLT NVT2003 3-bit I ² C Fm+ VLT for I ² C/SMBus applications NVT2004 4-bit I ² C Fm+ VLT for SPI applications NVT2006 6-bit I ² C Fm+ VLT NVT2008 8-bit I ² C Fm+ VLT	· ·	PCA9518A	I²C Fm expandable 5-channel hub
GTL20038-bit I²C Fm+ VLTGTL201010-bit I²C Fm+ VLTGTL2010Dual I²C/SMBus Fm+ VLTPCA9306Dual I²C/SMBus Fm+ VLTNVT20011-bit I²C Fm+ VLTNVT20022-bit I²C Fm+ VLT for I²C/SMBus applicationsNVT20033-bit I²C Fm+ VLT for two power supply applicationsNVT20044-bit I²C Fm+ VLT for SPI applicationsNVT20056-bit I²C Fm+ VLTNVT20088-bit I²C Fm+ VLT		GTL2000	22-bit I ² C Fm+ VLT
Voltage translator GTL2010 10-bit I²C Fm+ VLT PCA9306 Dual I²C/SMBus Fm+ VLT NVT2001 1-bit I²C Fm+ VLT NVT2002 2-bit I²C Fm+ VLT for I²C/SMBus applications NVT2003 3-bit I²C Fm+ VLT for two power supply applications NVT2004 4-bit I²C Fm+ VLT for SPI applications NVT2006 6-bit I²C Fm+ VLT NVT2008 8-bit I²C Fm+ VLT		GTL2002	2-bit I ² C Fm+ VLT
PCA9306 Dual I²C/SMBus Fm+ VLT PCA9306 Dual I²C/SMBus Fm+ VLT NVT2001 1-bit I²C Fm+ VLT NVT2002 2-bit I²C Fm+ VLT for I²C/SMBus applications NVT2003 3-bit I²C Fm+ VLT for two power supply applications NVT2004 4-bit I²C Fm+ VLT for SPI applications NVT2006 6-bit I²C Fm+ VLT NVT2008 8-bit I²C Fm+ VLT		GTL2003	8-bit I ² C Fm+ VLT
Voltage translator (doesn't isolate capacitance) NVT2001 1-bit I ² C Fm+ VLT NVT2002 2-bit I ² C Fm+ VLT for I ² C/SMBus applications NVT2003 3-bit I ² C Fm+ VLT for two power supply applications NVT2004 4-bit I ² C Fm+ VLT for SPI applications NVT2006 6-bit I ² C Fm+ VLT NVT2008 8-bit I ² C Fm+ VLT		GTL2010	10-bit I ² C Fm+ VLT
(doesn't isolate capacitance) NVT2002 2-bit l²C Fm + VLT for l²C/SMBus applications NVT2003 3-bit l²C Fm + VLT for two power supply applications NVT2004 4-bit l²C Fm + VLT for SPI applications NVT2006 6-bit l²C Fm + VLT NVT2008 8-bit l²C Fm + VLT		PCA9306	Dual I ² C/SMBus Fm+ VLT
NVT2002 2-bit I²C Fm+ VLT for I²C/SMBus applications NVT2003 3-bit I²C Fm+ VLT for two power supply applications NVT2004 4-bit I²C Fm+ VLT for SPI applications NVT2006 6-bit I²C Fm+ VLT NVT2008 8-bit I²C Fm+ VLT	Voltage translator	NVT2001	1-bit I ² C Fm+ VLT
NVT2004 4-bit I ² C Fm+ VLT for SPI applications NVT2006 6-bit I ² C Fm+ VLT NVT2008 8-bit I ² C Fm+ VLT	capacitance)	NVT2002	2-bit I ² C Fm+ VLT for I ² C/SMBus applications
NVT2006 6-bit I²C Fm+ VLT NVT2008 8-bit I²C Fm+ VLT		NVT2003	3-bit I ² C Fm+ VLT for two power supply applications
NVT2008 8-bit I ² C Fm+ VLT		NVT2004	4-bit I ² C Fm+ VLT for SPI applications
		NVT2006	6-bit I ² C Fm+ VLT
NVT2010 10-bit I ² C Fm+ VLT		NVT2008	8-bit I ² C Fm+ VLT
		NVT2010	10-bit I ² C Fm+ VLT

Decode table

	Bus Speed		Features	
Sm	100 kHz Standard-mode I ² C-bus	LV	Supply voltage <2.3 V	
Fm	400 kHz Fast-mode I ² C-bus	ТР	Totem-pole (push-pull)	
Fm+	1 MHz Fast-mode Plus I ² C-bus	QB	Quasi-bidirectional	
HSm	3.4 MHz High Speed-mode I ² C-bus	OD	Open drain	
UFm	5 MHz Ultra Fast-mode I ² C-bus	CS	Current source	
		INT	Interrupt	
+	AEC-Q100 compliance	RST	Reset	
GPIO	General Purpose I/O Expander	OE	Output enable	
TS	Thermal Sensor	Latch	Input latch	
RTC	Real Time Clock	PU	Pull-up resistors	
LCD	Liquid Crystal Display	PU/PD	Pull-up/pull-down resistors	
DAC	Digital Analog Converter	HV	Outputs >10 V	
ADC	Analog Digital Converter	VLT	Voltage Level Translator – 2 Supplies	
		COG	Chip on Glass	

LCD drivers	8		
	PCF2113	I ² C Fm 1/2-line, 12-character, 120-icon LCD driver	
Character driver	PCF2116	I ² C Sm 1/2-line, 24 characters per line, or 2/4 line, 12 characters per line	
	PCF2119	I ² C Fm 1/2-line, 16-character, 160-icon LCD driver	
	PCF8531	I²C Fm 34 x 128-pixel LCD driver	
Graphic driver	PCF8578	I ² C Sm Dot-matrix LCD driver (row/column)	
	PCF8579	I ² C Sm Dot-matrix LCD driver (column)	
	PCF8811	I ² C Hsm 80 x 128-pixel LCD driver	
	PCF8577C	I ² C Sm 64-segment LCD driver	
	PCF8566	I ² C Sm 96-segment LCD driver	
	+ PCA/PCF85162	I ² C Fm 128-segment LCD driver	
	+ PCA/PCF85176	I ² C Fm 160-segment LCD driver	
	+ PCA/PCF85134	I ² C Fm 240-segment LCD driver	
Segment driver	+ PCA/PCF85133	I ² C Fm 320-segment, COG LCD driver	
	+ PCA/PCF8536	I ² C Fm 320-segment plus LED backlight control	
	PCF8578	I ² C Sm 384-segment LCD driver	
	+ PCA9620	I ² C Fm 480-segment LCD driver	
	+ PCA/PCF85132	I ² C Fm 640-segment COG LCD driver	
	+ PCA85232	I ² C Fm 640-segment COG LCD driver	

Bridge and bus controllers		
	SC16IS740	I ² C Fm/SPI-to-UART bridge with IrDA
	SC16IS741	I ² C Fm/SPI-to-UART bridge with IrDA
	SC16IS750	I ² C Fm/SPI-to-UART bridge with IrDA and GPIO
	SC16IS752	I ² C Fm/SPI-to-DUART bridge with IrDA and GPIO
Bridge	SC16IS760	I ² C Fm/SPI-to-UART bridge with IrDA and GPIO
	SC16IS762	I ² C Fm/SPI-to-DUART bridge with IrDA and GPIO
	SC18IM700	UART-to-I ² C Fm master bridge with GPIO
	SC18IS600	SPI-to-I ² C Fm master bridge, 4 M with GPIO
	SC18IS602	I ² C Fm slave-to-SPI master bridge
	PCF8584	I²C Sm bus controller with bus snoop
	PCA9564	I²C Fm bus controller
	PCA9661	1-channel I ² C Fm+ bus controller with 4 K-byte buffer
	PCA9663	3-channel I²C Fm+ bus controller with 4 K-byte buffer per channel
Controller	PCA9665	I ² C Fm+ bus controller with 68-byte buffer
	PCA9665A	I ² C Fm+ bus controller with 68-byte buffer and restart condition fix
	PCU9661	1-channel UFm bus controller with 4 K-byte buffer
	PCU9669	1-channel Fm+ and ² -channel UFm bus controller with 4 K-byte buffer per channel

A/D-D/A converters	*	
8-bit ADC	PCF8591	I ² C Sm 4-channel ADC and 1-channel DAC

EEPROMs		
	PCF85102C	I ² C Sm 256 x 8-bit EEPROM (No programming time control output)
2-kbit	PCF85103C	$\rm I^2C~Sm~256~x$ 8-bit EEPROM (No programming time control output with ALT address)
	PCF8582C	I ² C Sm 256 x 8 EEPROM
	PCF8570	I²C Sm 256 x 8-bit RAM
4-kbit	PCF8594C	I ² C Sm 1024 x 8-bit EEPROM
4-KDIT	SL3S4001	I ² C Fm 3.6K bit EEPROM with dual Gen2 RFID interface
8-kbit	PCA24S08A	I^2C Fm 1024 x 8-bit EEPROM with access protection
0-KDIL	PCF8598C	I ² C Sm 1024 x 8-bit EEPROM
	PCA8550	I ² C Fm 4-bit 1-of-2 mux & 5-bit EEPROM
	PCA9558	I ² C Fm 5-bit MP/1-bit latch & 6-bit EEPROM with 2K EEPROM and 8-bit GPIO
DIP switch	PCA9559	I2C Fm 5-bit mux/1-bit latch & 6-bit EEPROM
	PCA9560	I ² C Fm 2 x 5-bit mux/1-bit latch & 6-bit EEPROM
	PCA9561	I ² C Fm 4 x 6-bit mux & 6-bit EEPROM

no boards		
pols	OM6270	SPI/I ² C-to-UART bridge demo (SC16IS750)
	OM6271	SPI-to-I ² C-master bridge demo (SC18IS600)
	OM6272	UART-to-I ² C-master bridge demo (SC18IM700)
	OM6273	SPI/I ² C-to-DUART/IrDA/GPIO demo (SC16IS752)
	OM6274	l²C-to-SPI-master bridge demo (SC18IS602)
	OM6275	I²C 2005-1 evaluation board
	OM6276	PCA9633 demo board
	OM6277	PCA9564 evaluation board
	OM6278	I²C 2002-1A evaluation board
	OM6281	PCA9698 daughter card for I ² C 2005-1
	OM6282	PCA9633 daughter card for I ² C 2005-1
	OM6285	I ² C 2002-1A evaluation board without PC controller board
	OM6290	LCD driver evaluation board: PCF8576D, PCF2119, PCF8531, PCA9633
	OM6292	PCA21125, PCF8562 demoboard
	OM6293	PCA9600 daughter card for I ² C 2005-1
	OM6297	PCF2123, PCF8562 demoboard
	OM11051	PCF2127A demo board
	OM11057	PCF8885/86 capacitive sensor and PCF8536 LCD/LED driver
	OM13260	I²C Fm+ development board (RoHS)
	OM13243	PCA9555 daughter card (RoHS)
	OM13243	GPIO target board (RoHS)
	OM13257	LM75B daughter card (RoHS)
	OM13285	PCA9629 demo board
	OM13320	I²C Fm+ development kit (RoHS)

 OM6275
 Comparison

 Production board
 Comparison

 OM6278
 Comparison

 OM6277
 Comparison

OM6277 PCA9564 evaluation board



OM6293 PCA9600 daughter card for I²C 2005-1



OM6276 PCA9633 demo board



Our I²C-bus website (www.nxp.com/interface) is a valuable resource for device information and training programs. It gives you direct access to a comprehensive handbook, application notes, information about evaluation kits and training materials, links to application and design support, and more.

The I²C Fm+ development board and daughter cards make it easy to program new peripherals and are a quick way to learn about the I²C-bus protocol. OM13320 Fm+ Demonstration Kit which includes the OM13260 Fm+ Development Board with two OM13303 GPIO Target Boards and one each of the OM13243 PCA9555 GPIO 16-bit and OM13257 LM75B Thermal Sensor daughter boards

> OM13285 PCA9629 stepper motor demonstration board

OM11057 PCF8885/86 touch switch with PCF8536 LCD/LED driver





e-Tools

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