To initialize an I/O port for general use, we perform seven steps. Steps two through four are needed only for the LM4F/TM4C microcontrollers. First, we activate the clock for the port. Second, we unlock the port; unlocking is needed only for pins PC3-0, PD7, PF0 on the LM4F and TM4C. Third, we disable the analog function of the pin, because we will be using the pin for digital I/O. Fourth, we clear bits in the PCTL (Table 6.1) to select regular digital function. Fifth, we set its direction register. Sixth, we clear bits in the alternate function register, and lastly, seventh, we enable the digital port.

Address	7	6	5	4	3	2	1	0	Name
$400FE108			GPIOF	GPIOE	GPIOD	GPIOC	GPIOB	GPIOA	SYSCTL_RCGC2_R
$400043FC	DATA	DATA	DATA	DATA	DATA	DATA	DATA	DATA	GPIO_PORTA_DATA_R
$40004400	DIR	DIR	DIR	DIR	DIR	DIR	DIR	DIR	GPIO_PORTA_DIR_R
$40004420	SEL	SEL	SEL	SEL	SEL	SEL	SEL	SEL	GPIO_PORTA_AFSEL_R
$40004510	PUE	PUE	PUE	PUE	PUE	PUE	PUE	PUE	GPIO_PORTA_PUR_R
$4000451C	DEN	DEN	DEN	DEN	DEN	DEN	DEN	DEN	GPIO_PORTA_DEN_R
$40004524	1	1	1	1	1	1	1	1	GPIO_PORTA_CR_R
$40004528	0	0	0	0	0	0	0	0	GPIO_PORTA_AMSEL_R
$400053FC	DATA	DATA	DATA	DATA	DATA	DATA	DATA	DATA	GPIO_PORTB_DATA_R

$4000.5400	DR	DIR	DIR	DR	DR	DR	DIR	DR	GPIO_PORTB_DIR_R
$4000.5420	SEL	SEL	SEL	SEL	SEL	SEL	SEL	SEL	GPIO_PORTB_AFSEL_R
$4000.5510	PUE	PUE	PUE	PUE	PUE	PUE	PUE	PUE	GPIO_PORTB_PUR_R
$4000.551C	DEN	DEN	DEN	DEN	DEN	DEN	DEN	DEN	GPIO_PORTB_DEN_R
$4000.5524	1	1	1	1	1	1	1	1	GPIO_PORTB_CR_R
$4000.5528	0	0	AMSEL	AMSEL	0	0	0	0	GPIO_PORTB_AMSEL_R
$4000.63FC	DATA	DATA	DATA	DATA	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_DATA_R
$4000.6400	DR	DIR	DIR	DR	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_DR_R
$4000.6420	SEL	SEL	SEL	SEL	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_AFSEL_R
$4000.6510	PUE	PUE	PUE	PUE	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_PUR_R
$4000.651C	DEN	DEN	DEN	DEN	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_DEN_R
$4000.6524	1	1	1	1	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_CR_R
$4000.6528	AMSEL	AMSEL	AMSEL	AMSEL	JTAG	JTAG	JTAG	JTAG	GPIO_PORTC_AMSEL_R
$4000.73FC	DATA	DATA	DATA	DATA	DATA	DATA	DATA	DATA	GPIO_PORTD_DATA_R
$4000.7400	DR	DIR	DIR	DR	DR	DR	DIR	DR	GPIO_PORTD_DR_R
$4000.7420	SEL	SEL	SEL	SEL	SEL	SEL	SEL	SEL	GPIO_PORTD_AFSEL_R
$4000.7510	PUE	PUE	PUE	PUE	PUE	PUE	PUE	PUE	GPIO_PORTD_PUR_R
$4000.751C	DEN	DEN	DEN	DEN	DEN	DEN	DEN	DEN	GPIO_PORTD_DEN_R

$4000.7524	CR	1	1	1	1	1	1	1	GPIO PORTD CR R
$4000.7528	0	0	AMSEL	AMSEL	AMSEL	AMSEL	AMSEL	AMSEL	GPIO PORTD AMSEL R
$4002.43FC			DATA	DATA	DATA	DATA	DATA	DATA	GPIO_PORTE_DATA R
$4002.4400			DIR	DIR	DIR	DIR	DIR	DIR	GPIO PORTE DIR R
$4002.4420			SEL	SEL	SEL	SEL	SEL	SEL	GPIO_PORTE_AFSEL R
$4002.4510			PUE	PUE	PUE	PUE	PUE	PUE	GPIO PORTE PUR R
$4002.451C			DEN	DEN	DEN	DEN	DEN	DEN	GPIO PORTE DEN R
$4002.4524			1	1	1	1	1	1	GPIO_PORTE_CR_R
$4002.4528			AMSEL	AMSEL	AMSEL	AMSEL	AMSEL	AMSEL	GPIO PORTE AMSEL_R
$4002.53FC				DATA	DATA	DATA	DATA	DATA	GPIO_PORTF_DATA R
$4002.5400				DIR	DIR	DIR	DIR	DIR	GPIO PORTF DIR R
$4002.5420				SEL	SEL	SEL	SEL	SEL	GPIO PORTF AFSEL R
$4002.5510				PUE	PUE	PUE	PUE	PUE	GPIO_PORTF_PUR_R
$4002.551C				DEN	DEN	DEN	DEN	DEN	GPIO PORTF DEN R
$4002.5524				1	1	1	1	CR	GPIO_PORTF_CR_R
$4002.5528				0	0	0	0	0	GPIO PORTF AMSEL_R

$4000.452C	PMC7	PMC6	PMC5	PMC4	PMC3	PMC2	PMC1	PMC0	GPIO_PORTA_PCTL_R
$4000.552C	PMC7	PMC6	PMC5	PMC4	PMC3	PMC2	PMC1	PMC0	GPIO_PORTB_PCTL_R
$4000.652C	PMC7	PMC6	PMC5	PMC4	0x1	0x1	0x1	0x1	GPIO_PORTC_PCTL_R
$4000.752C	PMC7	PMC6	PMC5	PMC4	PMC3	PMC2	PMC1	PMC0	GPIO_PORTD_PCTL_R
$4002.452C			PMC5	PMC4	PMC3	PMC2	PMC1	PMC0	GPIO_PORTE_PCTL_R
$4002.552C				PMC4	PMC3	PMC2	PMC1	PMC0	GPIO_PORTF_PCTL_R
$4000.6520	LOCK (write 0x4C4F434B to unlock, other locks) (reads 1 if locked, 0 if unlocked)								GPIO_PORTC_LOCK_R
$4000.7520	LOCK (write 0x4C4F434B to unlock, other locks) (reads 1 if locked, 0 if unlocked)								GPIO_PORTD_LOCK_R
$4002.5520	LOCK (write 0x4C4F434B to unlock, other locks) (reads 1 if locked, 0 if unlocked)								GPIO_PORTF_LOCK_R

Table 6.2 Some TM4C123 parallel ports. Each register is 32 bits wide. For PMCx bits, see Table 6.1. JTAG means do not use these pins and do not change any of these bits.