REGISTRES I/O

Register Name	I/O Address	Read/Write	Function	Page
P0 Data	0x00	R/W	General purpose I/O Port (low current)	12
P1 Data	0x01	R/W	General purpose I/O Port (high current)	12
P0 IE	0x04	W	Interrupt enable for Port 0 pins	15
P1 IE	0x05	W	Interrupt enable for Port 1 pins	15
P0 Pull-up	0x08	W	Pull-up resistor control for Port 0 pins	13
P1 Pull-up	0x09	W	Pull-up resistor control for Port 1 pins	13
EP0 TX Config.	0x10	R/W	USB Endpoint 0 transmit configuration	18
EP1 TX Config.	0x11	R/W	USB Endpoint 1 transmit configuration	19
USB DA	0x12	R/W	USB device address	17
USB SCR	0x13	R/W	USB status and control	19
EP0 RX Status	0x14	R/W	USB Endpoint 0 receive status	17
GIE	0x20	R/W	Global Interrupt Enable	14
WDT	0x21	W	Watch Dog Timer clear	10
Cext	0x22	R/W	External R-C Timing circuit control	11
Timer	0x23	R	Free-running timer	11
P0 Isink	0x30-0x37	W	Input sink current control for Port 0 pins. There is one Isink register for each pin. Address of the Isink register for pin 0 is located at 0x30 and the register address for pin 7 is located at 0x37.	13
P1 Isink	0x38-0x3F	W	Input sink current control for Port 1 pins. There is one Isink register for each pin. Address of the Isink register for pin 0 is located at 0x38 and the register address for pin 7 is located at 0x3F. The number of Port 1 pins depends on package type.	13
SCR	0xFF	R/W	Processor status and control register	10

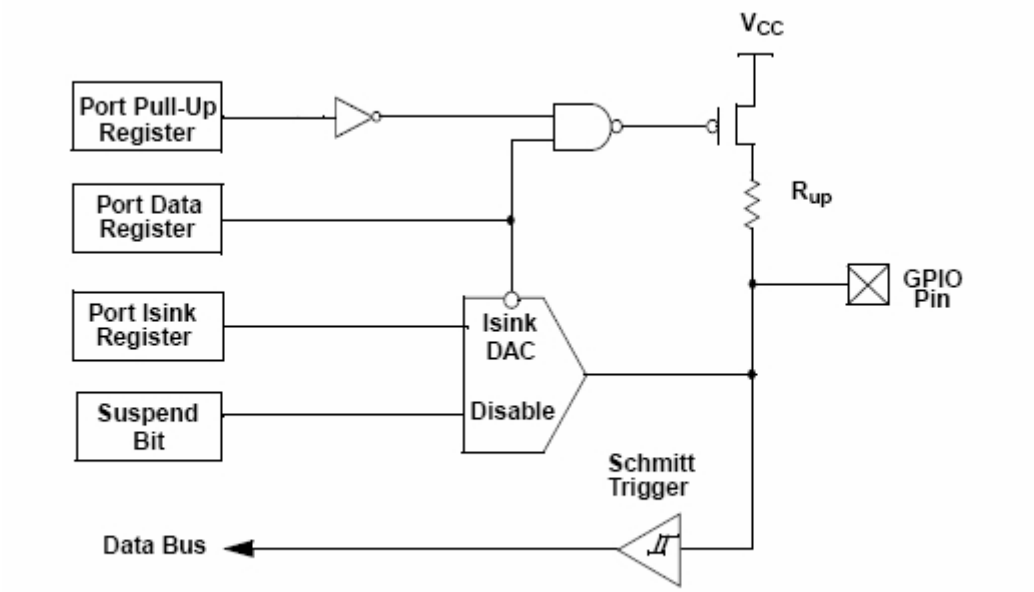

Figure 5-10. Block Diagram of an I/O Line

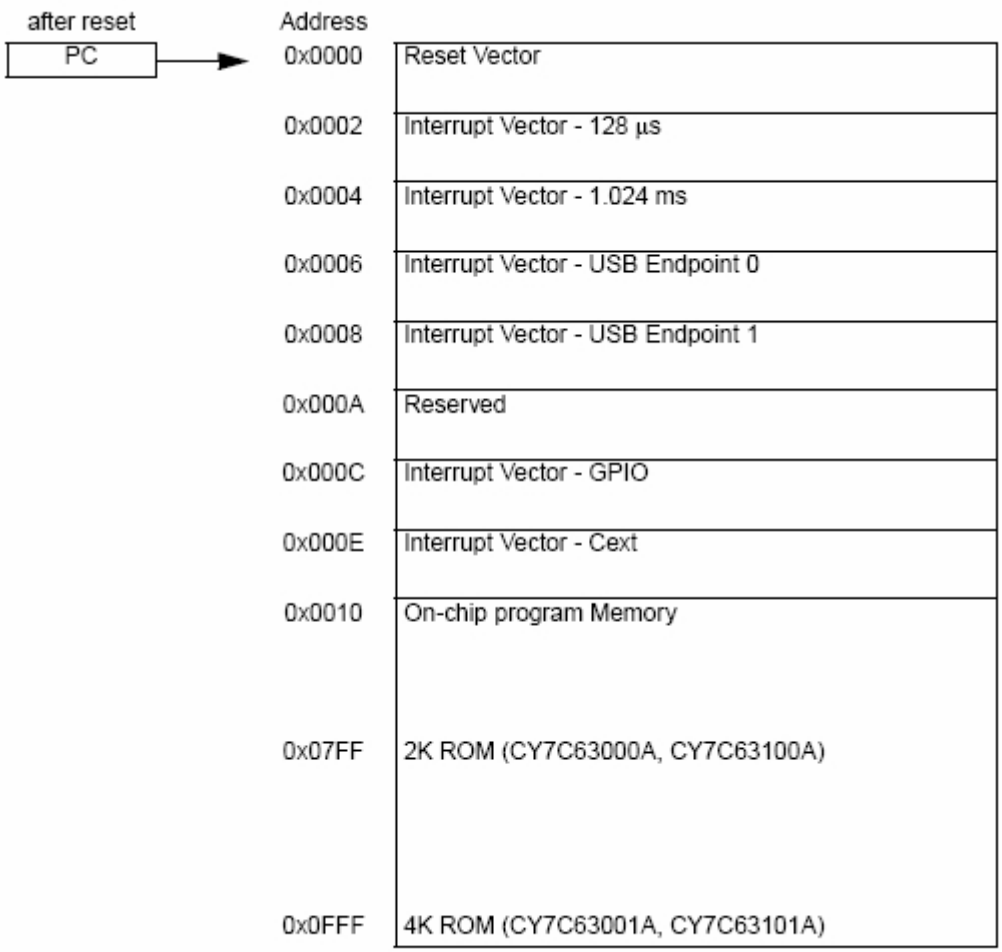

Figure 5-1. Program Memory Space

INTERFACE USB

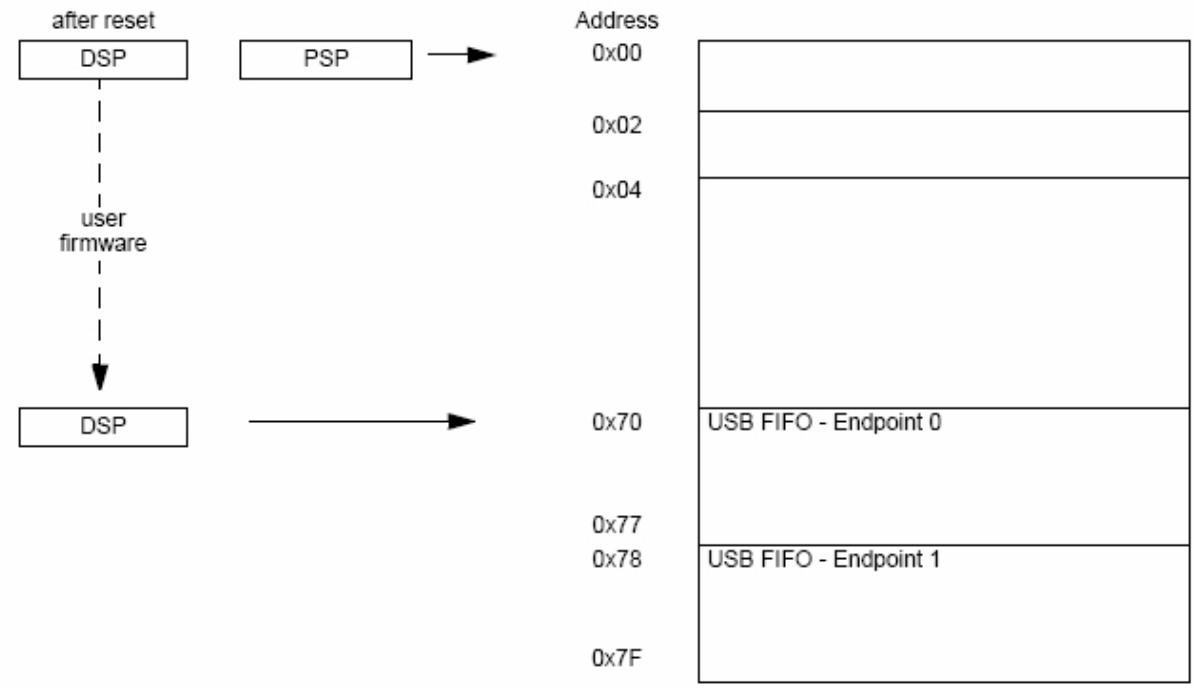

Figure 5-2. Data Memory Space

Register Name	I/O Address	Read/Write	Function	Page
P0 Data	0x00	R/W	General purpose I/O Port (low current)	12
P1 Data	0x01	R/W	General purpose I/O Port (high current)	12
P0 IE	0x04	W	Interrupt enable for Port 0 pins	15
P1 IE	0x05	W	Interrupt enable for Port 1 pins	15
P0 Pull-up	0x08	W	Pull-up resistor control for Port 0 pins	13
P1 Pull-up	0x09	W	Pull-up resistor control for Port 1 pins	13
EP0 TX Config.	0x10	R/W	USB Endpoint 0 transmit configuration	18
EP1 TX Config.	0x11	R/W	USB Endpoint 1 transmit configuration	19
USB DA	0x12	R/W	USB device address	17
USB SCR	0x13	R/W	USB status and control	19
EP0 RX Status	0x14	R/W	USB Endpoint 0 receive status	17
GIE	0x20	R/W	Global Interrupt Enable	14
WDT	0x21	W	Watch Dog Timer clear	10
Cext	0x22	R/W	External R-C Timing circuit control	11
Timer	0x23	R	Free-running timer	11
P0 Isink	0x30-0x37	W	Input sink current control for Port 0 pins. There is one Isink register for each pin. Address of the Isink register for pin 0 is located at 0x30 and the register address for pin 7 is located at 0x37.	13
P1 Isink	0x38-0x3F	W	Input sink current control for Port 1 pins. There is one Isink register for each pin. Address of the Isink register for pin 0 is located at 0x38 and the register address for pin 7 is located at 0x3F. The number of Port 1 pins depends on package type.	13
SCR	0xFF	R/W	Processor status and control register	10

b7	b6	b5	b4	b3	b2	b1	b0
Reserved	ADR6	ADR5	ADR4	ADR3	ADR2	ADR1	ADR0
	R/W	R/W	R/W	R/W	R/W	R/W	R/W
0	0	0	0	0	0	0	0

Figure 5-20. USB Device Address Register (USB DA - Address 0x12)

Registre de STATUS Réception EP0

b7	b6	b5	b4	b3	b2	b1	b0
COUNT3	COUNT2	COUNT1	COUNT0	TOGGLE	IN	OUT	SETUP
R/W	R/W	R/W	R/W	R	R/W	R/W	R/W
0	0	0	0	0	0	0	0

Figure 5-21. USB Endpoint 0 RX Register (Address 0x14)

Table des réponses USB aux transactions SETUP et OUT sur EP0

Control Bit Settings			Received Packets		USB Engine Response				
Stall	Status Out	Enable Out	Token Type	Data Packet	FIFO Write	Toggle Update	Count Update	Interrupt	Reply
-	-	-	SETUP	Valid	Yes	Yes	Yes	Yes	ACK
-	-	-	SETUP	Error	Yes	Yes	Yes	Yes	None
0	0	1	OUT	Valid	Yes	Yes	Yes	Yes	ACK
0	0	1	OUT	Error	Yes	Yes	Yes	Yes	None
0	0	0	OUT	Valid	No	No	No	No	NAK
0	0	0	OUT	Error	No	No	No	No	None
1	0	0	OUT	Valid	No	No	No	No	STALL
1	0	0	OUT	Error	No	No	No	No	None
0	1	0	OUT	Status	No	Yes	Yes	Yes	ACK
0	1	0	OUT	N/Status	No	Yes	Yes	Yes	STALL
0	1	0	OUT	Error	No	Yes	No	No	None

Registre de CONFIGURATION Transmission EP0

b7	b6	b5	b4	b3	b2	b1	b0
INEN	DATA1/0	STALL	ERR	COUNT3	COUNT2	COUNT1	COUNT0
R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W
0	0	0	0	0	0	0	0

Figure 5-22. USB Endpoint 0 TX Configuration Register (Address 0x10)

Registre de CONFIGURATION Transmission EP1

b7	b6	b5	b4	b3	b2	b1	b0
INEN	DATA1/0	STALL	EP1EN	COUNT3	COUNT2	COUNT1	COUNT0
R/W	R/W	R/W	R/W	R/W	R/W	R/W	R/W
0	0	0	0	0	0	0	0

Figure 5-23. USB Endpoint 1 TX Configuration Register (Address 0x11)

ANALYSE DU PROGRAMME

Segment de données en RAM

Variables utilisées
« gb » : variable globale
Segment de données en ROM
Tables fixes dans la zonz programme
Accès par instruction INDEX
Paramètres transmis pendant l'énumération
Descripteurs :

`USBDeviceDescription` Table de device l fixe 18 octets
Lien entre le produit et le driver
Information déclarée dans le fichier d'extension .inf

`USBConfigurationDescription` `Configuration`

`USBConfigurationDescription` `Descripteur de l'interface`

`USBEndPointDescriptionInt`

`Tables de chaînes`

Programme

Vector Table

Reset mst ou USB >> Main()

Main()

Inits
Attente énumération

Boucle ppale
Attente 10ms
Mesure temp

Enumeration :
UsbEndPoint0Event
Gestion paquets de setup

Gestion des demandes Propriétaire (Vendor Request)