ITM-1261-ACK







802.11b/g/n + BT4.2 Alexa Connect Kit+ Nuvoton 72 MHz. Cortex[®]-M0 core

General Description

ITM-1261-ACK module is a highly integrated and low power consumption and compact size module supporting on-board Antenna Wireless LAN (WLAN 802.11 b/g/n) and Bluetooth Low Energy (BLE 4.2). With the preloaded firmware, it provides the ability to connect with Alexa service.

ITM-1261-ACK consists of two key parts:

- 1. USI 802.11b/g/n + BT4.2 Alexa Connect Kit
- 2. Nuvoton 72 MHz. Cortex®-M0 core

The Alexa Connect Kit (ACK) is a way for device makers to connect devices to Alexa without worrying about managing cloud services, writing an Alexa skill, or developing complex networking and security firmware.

ACK enables device makers to make any device an Alexa-connected smart device. With ACK, you pay for the hardware module and a low, upfront fee that covers your ongoing use of the ACK cloud service. ACK enables you to turn the ongoing and variable cost of

managing your own cloud service into a fixed, one-time cost. ACK will also offer cloud extensibility options in addition to ACK cloud services for you to connect your

device to your own mobile applications, your own cloud service, and third-party cloud services such as IFTTT.

While you build and manage devices more quickly and economically, your customers enjoy Alexa control, Wi-Fi simple setup, and (optionally) the Dash Replenishment Service.

The architecture of ITM-1261-ACK is shown as below.



Features

• Core

- Arm[®] Cortex[®]-M0 core running up to 72 MHzFPU/DSP
- One 24-bit system timer
- Supports low power sleep
- NVIC for the 32 interrupt inputs, each with 4-levels of priority
- Supports programmable mask-able interrupts
- Serial Wire Debug supports with 2 watch-points / 4 breakpoints
- Built-in LDO for wide operating voltage ranged from 2.5 V to 5.5 V
- Supports 256/128 Kbytes application ROM (APROM)
- Supports 4 Kbytes Flash for loader (LDROM)
- Supports 2 Kbytes Security Protection Rom (SPROM)
- Supports 12 bytes User Configuration block to control system initiation
- Supports Data Flash with configurable memory size
- Supports 2 Kbytes page erase for all embedded Flash
- Supports In-System-Programming (ISP), In-Application-Programming (IAP) update embedded Flash memory
- Supports CRC-32 checksum calculation function
- Supports Flash all one verification function
- Hardware external read protection of whole Flash memory by Security Lock Bit
- Supports 2-wired ICP update through SWD/ICE interface
- 20 Kbytes embedded SRAM
- Supports byte-, half-word- and word-access
- Wi-Fi
 - Featuring integrated IEEE 802.11 b/g/n + BT4.2
 - Low power consumption and excellent power management performance which extends battery life
 - Small size suitable for low volume system integration
 - Three options for RF LGA/IPEX SW23(w/o antenna) and onboard antenna(w antenna)
 - Lead Free design which supporting Green design requirement, RoHS Compliance Support 11n MCS7 HT20/HT40 Support antenna diversity Low power architecture and Tx/Rx for short range application @1.8V Low power beacon listen mode Low power Rx mode Very low power suspend mode (DLPS)
 - PDMA (Peripheral DMA)

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 Supports 5 independent configurable channels for automatic data transfer between memories and peripherals

- Supports single and burst transfer type
- Supports Normal and Scatter-Gather Transfer modes
- Supports two types of priorities modes: Fixed-priority and Round-robin modes
- Supports byte-, half-word- and word-access
- Supports incrementing mode for the source and destination address for each channel
- Supports time-out function for channel 0 and channel 1
- Supports software and SPI/I2S, UART, USCI, USB, ADC, PWM and TIMER request

Clock Control

- Built-in 22.1184 MHz high speed RC oscillator for system operation (Frequency variation < 2% at -40°C ~ +105°C)
- Built-in 48 MHz internal high speed RC oscillator for USB device operation
- Built-in 10 kHz low speed RC oscillator for Watchdog Timer and Wake-up operation
- Built-in 4~20 MHz high speed crystal oscillator for precise timing operation
- Built-in 32.768 kHz low speed crystal oscillator for Real Time Clock
- Supports PLL up to 144 MHz for high resolution PWM operation
- Supports dynamically calibrating the HIRC48 to 48 MHz ±0.25% by external 32.768 kHz crystal oscillator (LXT)
- Supports dynamically calibrating the HIRC to 22.1184 MHz by external 32.768 kHz crystal oscillator (LXT)
- Supports clock on-the-fly switch
- Supports clock failure detection for system clock
- Supports auto clock switch once clock failure detected
- Supports exception (NMI) generated once a clock failure detected
- Supports divided clock output

GPIO

– Four I/O modes

- TTL/Schmitt trigger input selectable
- I/O pin configured as interrupt source with edge/level trigger setting
- Supports high driver and high sink current I/O (up to 20 mA at 5 V)
- Supports software selectable slew rate control
- Supports up to 49/35 GPIOs for LQFP64/48 respectively
- Supports 5V-tolerance function for following pins

PA.0~PA.15, PB.12, PC.0~PC.7, PC.9~PC.14, PD.4~PD.7, PD.10~PD.15, PE.0~PE.1, PE.3~PE.13, PF.2, PF.7 Watchdog Timer

- Supports multiple clock sources from LIRC(default selection), HCLK/2048 and LXT

8 selectable time-out period from 1.6 ms ~ 26.0 sec (depending on clock source)

- Able to wake up from Power-down or Idle mode
- Interrupt or reset selectable on watchdog time-out

Window Watchdog Timer

- Supports multiple clock sources from HCLK/2048 (default selection) and LIRC
- Window set by 6-bit counter with 11-bit prescale
- Interrupt or reset selectable on time-out

RTC

- Supports separate battery power pin VBAT
- Supports software compensation by setting frequency compensate register (FCR)
- Supports RTC counter (second, minute, hour) and calendar counter (day, month, year)
- Supports Alarm registers (second, minute, hour, day, month, year)
- Supports Alarm mask registers
- Selectable 12-hour or 24-hour mode
- Automatic leap year recognition
- Supports periodic time tick interrupt with 8 period options 1/128, 1/64, 1/32, 1/16, 1/8, 1/4, 1/2 and 1 second
- Supports wake-up function

PWM

- Supports maximum clock frequency up to144 MHz
- Supports up to two PWM modules, each module provides 6 output channels.
- Supports independent mode for PWM output/Capture input channel
- Supports complementary mode for 2 complementary paired PWM output channel
- Dead-time insertion with 12-bit resolution

Two compared values during one period

- Supports 12-bit pre-scalar from 1 to 4096
- Supports 16-bit resolution PWM counter
- Up, down and up/down counter operation type
 - Supports mask function and tri-state enable for each PWM pin
 - Supports brake function

Brake source from pin and system safety events: clock failed, Brown-out detection and CPU lockup.

Noise filter for brake source from pin

Edge detect brake source to control brake state until brake interrupt cleared

Level detect brake source to auto recover function after brake condition removed

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NUC1261 SERIES DATASHEET

– Supports interrupt on the following events:

PWM counter match zero, period value or compared value

Brake condition happened

- Supports trigger ADC on the following events:
- PWM counter match zero, period value or compared value
 - Supports up to 12 capture input channels with 16-bit resolution
 - Supports rising or falling capture condition
 - Supports input rising/falling capture interrupt
 - Supports rising/falling capture with counter reload option

UART

- Supports up to 3 sets of UART
- Full-duplex asynchronous communications
- Separates receive and transmit 16/16 bytes entry FIFO for data payloads
- Supports hardware auto-flow control (RX, TX, CTS and RTS)
- Programmable receiver buffer trigger level
- Supports programmable baud rate generator for each channel individually
- Supports 8-bit receiver buffer time-out detection function
- Programmable transmitting data delay time between the last stop and the next start bit by setting DLY (UART_TOUT [15:8])
- Supports Auto-Baud Rate measurement and baud rate compensation function
- Supports break error, frame error, parity error and receive/transmit buffer overflow detection function
- Fully programmable serial-interface characteristics
- Programmable number of data bit, 5-, 6-, 7-, 8- bit character
- Programmable parity bit, even, odd, no parity or stick parity bit generation and detection

Programmable stop bit, 1, 1.5, or 2 stop bit generation

- Supports IrDA SIR function mode
- Supports for 3/16 bit duration for normal mode
 - Supports LIN function mode

Supports LIN master/slave mode

Supports programmable break generation function for transmitter

Supports break detection function for receiver

– Supports RS-485 mode

Supports RS-485 9-bit mode

Supports hardware or software enables to program nRTS pin to control RS-485 transmission direction

– Supports nCTS, incoming data, Received Data FIFO reached threshold and RS-485 Address Match (AAD mode) wake-up function

- Supports PDMA transfer

I2C

- Supports up to two sets of I2C device
- Supports Master/Slave mode
- Supports bidirectional data transfer between masters and slaves
- Supports multi-master bus (no central master)
- Arbitration between simultaneously transmitting masters without corruption of serial data on the bus

- Serial clock synchronization allows devices with different bit rates to communicate via one serial bus

- Serial clock synchronization can be used as a handshake mechanism to suspend and resume serial transfer

- Supports 14-bit time-out counter requesting the I2C interrupt if the I2C bus hangs up and timer-out counter overflows

- Programmable clocks allow versatile rate control
- Supports multiple address recognition, four slave address with mask option
- Supports two-level buffer function
- Supports setup/hold time programmable
- Supports wake-up function

USB 2.0 FS Device Controller

- Crystal-less USB 2.0 FS Device
- Compliant to USB specification version 2.0
- On-chip USB Transceiver
- Supports Control, Bulk In/Out, Interrupt and Isochronous transfers
- Auto suspend function when no bus signaling for 3 ms
- Supports USB 2.0 Link Power Management (LPM)
- Provides 8 programmable endpoints
- Supports 512 Bytes internal SRAM as USB buffer
- Provides remote wake-up capability
- On-chip 5V to 3.3V LDO for USB PHY

ADC

- Supports 12-bit SAR ADC
- 12-bit resolution and 10-bit accuracy is guaranteed
- Analog input voltage range: 0~ AVDD
- Supports external VREF pin
- Up to 15 single-end analog input channels
- Maximum ADC peripheral clock frequency is 16 MHz
- Conversion rate up to 800 ksps at 5 V
- Configurable ADC internal sampling time

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- Supports single-scan, single-cycle-scan, and continuous scan and scan on enabled channels
- Supports individual conversion result register with valid and overrun indicators for each channel
- Supports digital comparator to monitor conversion result and user can select whether to generate
- an interrupt when conversion result matches the compare register setting
- An A/D conversion can be triggered by:
 - Software enable
 - External pin (STADC)
 - Timer 0~3 overflow pulse trigger
 - PWM triggers with optional start delay period
- Supports 4 internal channels for
 - Operational amplifier output
 - Band-gap VBG input
 - Temperature sensor input
 - VBAT voltage measure
- Supports internal reference voltage: 2.048 V, 2.560 V, 3.072 V and 4.096 V
- Supports PDMA transfer
- Analog Comparator
 - Supports up to 2 rail-to-rail analog comparators
 - Supports 4 multiplexed I/O pins at positive node.
 - Supports I/O pin and internal voltages at negative node
 - Support selectable internal voltage reference from:
 - Band-gap VBG
 - Voltage divider source from AVDD and internal reference voltage.
 - Supports programmable hysteresis
 - Supports programmable speed and power consumption
 - Interrupts generated when compare results change, interrupt event condition is programmable.
 - Supports power-down wake-up
 - Supports triggers for break events and cycle-by-cycle control for PWM
- Cyclic Redundancy Calculation Unit
 - Supports four common polynomials CRC-CCITT, CRC-8, CRC-16, and CRC-32
 - Programmable initial value
 - Supports programmable order reverse setting for input data and CRC checksum
 - Supports programmable 1's complement setting for input data and CRC checksum.
 - Supports 8/16/32-bit of data width
- Interrupt generated once checksum error occurs
- User Configurable VDDIO=1.8 ~ 5.5 V I/O Interface
 - Supports UART, SPI and I2C at PE.8~PE.13
- Supports 96-bit Unique ID (UID)

Supports 128-bit Unique Customer ID (UCID) One built-in temperature sensor with 1°C resolution Brown-out detector

- With 4 levels: 4.3 V/ 3.7V/ 2.7V/ 2.2V

- Supports Brown-out Interrupt and Reset option

Low Voltage Reset

– Threshold voltage levels: 2.0 V

Power consumption

- Chip power down current < 10 uA with RAM data retention.

- VBAT power domain operating current <1.5 uA

Operating Temperature: -40°C~105°C

Packages

- All Green package (RoHS)
- LQFP 64-pin (7x7mm)
- LQFP 48-pin (7x7mm)
- QFN 48-pin (7x7mm)

Interface Definition

Flash (Kbytes)	SRAM (Kbytes)	Data Flash (Kbytes)	SPROM (Kbytes)	ISP ROM (Kbytes)	0/1	Timer/PWM	PWM	USBD	usci*	Connec NART	tivity S ^z l/ldS	lzC	ADC(12-Bit)	ACMP	PDMA	VBAT (RTC)	νοια	EBI	ICP/IAP/ISP
128	20	Conf*	2	4	35	4	10	1	3	3	2	2	9-ch	2	5	V	V	V	v

NO	Name	Туре	Description
1	PB.5	I/O	Multi-function I/O pin (see Appendix for more detail)
2	PB.6	I/O	Multi-function I/O pin (see Appendix for more detail)
3	PB.7	I/O	Multi-function I/O pin (see Appendix for more detail)
4	PDECET	I	External reset input: active LOW, with an internal pull-up.
4	IIRESET	Ι	Set this pin low reset to initial state.
5	PD.0	I/O	Multi-function I/O pin (see Appendix for more detail)
6	AGND	P/G	Ground pin for analog circuit
7	PD.1	I/O	Multi-function I/O pin (see Appendix for more detail)
8	PD.2	I/O	Multi-function I/O pin (see Appendix for more detail)
9	PD.3	I/O	Multi-function I/O pin (see Appendix for more detail)
10	VDD	Р	3.3V Power supply
11	PF.0	I/O	Multi-function I/O pin (see Appendix for more detail)
12	PF.1	I/O	Multi-function I/O pin (see Appendix for more detail)
13	PF.2	I/O	Multi-function I/O pin (see Appendix for more detail)
14	PD.7	I/O	Multi-function I/O pin (see Appendix for more detail)
15	PF.3	I/O	Multi-function I/O pin (see Appendix for more detail)
16	PF.4	I/O	Multi-function I/O pin (see Appendix for more detail)
17	GND	G	Ground pin for digital circuit
18	LDO_CAP		Not connected (LDO Output Pin)
19	PC.0	I/O	Multi-function I/O (see Appendix for more detail)
20	HOST_INT_B	I/O	For module internal usage; Not connected

21	UART_NT_WR	I/O	For module internal usage; Not connected
22	UART_NR_WT	I/O	For module internal usage; Not connected
23	PC.4	I/O	Multi-function I/O pin (see Appendix for more detail)
24	RESET_B	I/O	For module internal usage; Not connected
25	ICE_CLK	I/O	Serial wired debugger clock pin.
26	ICE_DAT	I/O	Serial wired debugger data pin.
27	PE.10	I/O	Multi-function I/O pin (see Appendix for more detail)
28	PE.11	I/O	Multi-function I/O pin (see Appendix for more detail)
29	I2C0_CLK	I/O	For module internal usage; Not connected
30	I2C0_SDA	I/O	For module internal usage; Not connected
31	VDD	Р	3.3V power supply
32	USB_VBUS	Р	USB power supply from host or hub
33	USB_D-	А	USB differential signal D-
34	USB_D+	А	USB differential signal D+
35	PWR_EN	I/O	For module internal usage; Not connected
36	USB_3V3_CAP	А	For module internal usage; Not connected
37	U0_RX	I/O	UARTO data receiver input pin
38	U0_TX	I/O	UARTO data transmitter output pin
39	PA.1	I/O	Multi-function I/O pin (see Appendix for more detail)
40	PA.0	I/O	Multi-function I/O pin (see Appendix for more detail)
41	VDD	Р	3.3V power supply
42	AVDD	Р	3.3V power supply for analog circuit
43	AVDD	Р	3.3V power supply for analog circuit
44	PB.0	I/O	Multi-function I/O pin (see Appendix for more detail)
45	PB.1	I/O	Multi-function I/O pin (see Appendix for more detail)
46	PB.2	I/O	Multi-function I/O pin (see Appendix for more detail)
47	RESTORE_SET	I/O	For module internal usage; Not connected
48	PB.4	I/O	Multi-function I/O pin (see Appendix for more detail)

Appendix: Interface function detail

48	Pin Name	Туре	MFP	Description
1	PB.5	I/O	MFP0	General purpose digital I/O pin.
	ADC0_CH13	А	MFP1	ADC0 channel 13 analog input.
	SPI0 MOSI	I/O	MFP2	SPI0 MOSI (Master Out, Slave In) pin.
	SPI1_MOSI	I/O	MFP3	SPI1 MOSI (Master Out, Slave In) pin.
	ACMP0 P2	А	MFP5	Analog comparator 0 positive input 2 pin.
	EBI AD6	I/O	MFP7	EBI address/data bus bit 6.
	UART2 RXD	I	MFP9	UART2 data receiver input pin.
2	РВ.6	I/O	MFP0	General purpose digital I/O pin.
	ADC0_CH14	А	MFP1	ADC0 channel 14 analog input.
	SPI0_MISO	I/O	MFP2	SPI0 MISO (Master In, Slave Out) pin.
	SPI1_MISO	I/O	MFP3	SPI1 MISO (Master In, Slave Out) pin.
	ACMP0 P1	А	MFP5	Analog comparator 0 positive input 1 pin.
	EBI_AD5	I/O	MFP7	EBI address/data bus bit 5.
3	РВ.7	I/O	MFP0	General purpose digital I/O pin.
	ADC0_CH15	А	MFP1	ADC0 channel 15 analog input.
	SPI0_CLK	I/O	MFP2	SPIO serial clock pin.
	SPI1_CLK	I/O	MFP3	SPI1 serial clock pin.
	USCI2 CTL1	I/O	MFP4	USCI2 control 1 pin.
	ACMP0_P0	А	MFP5	Analog comparator 0 positive input 0 pin.
	EBI AD4	I/O	MFP7	EBI address/data bus bit 4.
4	nRESET	I	MFP0	External reset input: active LOW, with an internal pull-up. Set this
				pin low reset to initial state.
5	PD.0	I/O	MFP0	General purpose digital I/O pin.
	SPI0_I2SMCLK	I/O	MFP1	SPI0 I2S master clock output pin

48	Pin Name	Туре	MFP	Description
6	AVss	Р	MFP0	Ground pin for analog circuit.
7	PD.1	I/O	MFPO	General purpose digital I/O pin.
	ADC0 CH19	А	MFP1	ADC0 channel 19 analog input.
	PWM0_SYNC_IN	I	MFP2	PWM0 counter synchronous trigger input pin.
	UARTO TXD	0	MFP3	UARTO data transmitter output pin.
	USCI2 CLK	I/O	MFP4	USCI2 clock pin.
	ACMP1_P2	А	MFP5	Analog comparator 1 positive input 2 pin.
	TMO	I/O	MFP6	Timer0 event counter input/toggle output pin.
	EBI nRD	ο	MFP7	EBI read enable output pin.
8	PD.2	I/O	MFP0	General purpose digital I/O pin.
	ADC0 ST	I	MFP1	ADC0 external trigger input pin.
	TMO EXT	I/O	MFP3	Timer0 external capture input/toggle output pin.
	USCI2 DATO	I/O	MFP4	USCI2 data 0 pin.
	ACMP1 P1	А	MFP5	Analog comparator 1 positive input 1 pin.
	PWMO BRAKEO	1	MFP6	PWM0 Brake 0 input pin.
	EBI_nWR	0	MFP7	EBI write enable output pin.

48	Pin Name	Туре	MFP	Description
	INTO	I	MFP8	External interrupt 0 input pin.
9	PD.3	I/O	MFP0	General purpose digital I/O pin.
	TM2	I/O	MFP1	Timer2 event counter input/toggle output pin.
	SPIO I2SMCLK	I/O	MFP2	SPI0 I2S master clock output pin
	TM1 EXT	I/O	MFP3	Timer1 external capture input/toggle output pin.
	USCI2_DAT1	I/O	MFP4	USCI2 data 1 pin.
	ACMP1 P0	А	MFP5	Analog comparator 1 positive input 0 pin.
	PWM0_BRAKE1	I	MFP6	PWM0 Brake 1 input pin.
	EBI MCLK	0	MFP7	EBI external clock output pin.
	INT1	I	MFP8	External interrupt 1 input pin.
10	VBAT	Р	MFP0	Power supply by batteries for RTC.
11	PF.0	I/O	MFP0	General purpose digital I/O pin.
	X32 OUT	0	MFP1	External 32.768 kHz crystal output pin.
	USCI2_CTL1	I/O	MFP5	USCI2 control 1 pin.
	INT5	I	MFP8	External interrupt 5 input pin.
12	PF.1	I/O	MFP0	General purpose digital I/O pin.
	X32 IN	I	MFP1	External 32.768 kHz crystal input pin.
	USCI2 CTL0	I/O	MFP5	USCI2 control 0 pin.
	PWM1 BRAKEO	I	MFP6	PWM1 Brake 0 input pin.
13	PF.2	I/O	MFP0	General purpose digital I/O pin.
	USCI2 CLK	I/O	MFP5	USCI2 clock pin.
	PWM1 BRAKE1		MFP6	PWM1 Brake 1 input pin.

48	Pin Name	Туре	MFP	Description
14	PD.7	I/O	MFPO	General purpose digital I/O pin.
	USCI1_CTL1	I/O	MFP1	USCI1 control 1 pin.
	SPIO I2SMCLK	I/O	MFP2	SPI0 I2S master clock output pin
	PWM0_SYNC_IN	1	MFP3	PWM0 counter synchronous trigger input pin.
	TM1	I/O	MFP4	Timer1 event counter input/toggle output pin.
	ACMP0_0	0	MFP5	Analog comparator 0 output pin.
	PWM0 CH5	I/O	MFP6	PWM0 channel 5 output/capture input.
	EBI_nRD	0	MFP7	EBI read enable output pin.
15	PF.3	I/O	MFP0	General purpose digital I/O pin.
	XT1_OUT	0	MFP1	External 4~20 MHz (high speed) crystal output pin.
	I2C1 SCL	I/O	MFP3	I2C1 clock pin.
16	PF.4	I/O	MFP0	General purpose digital I/O pin.
	XT1_IN	I	MFP1	External 4~20 MHz (high speed) crystal input pin.
	I2C1 SDA	I/O	MFP3	I2C1 data input/output pin.
17	Vss	Р	MFP0	Ground pin for digital circuit.
	Vdd	Р	MFP0	Power supply for I/O ports and LDO source for internal PLL and digital
18	LDO CAP	А	MFPO	LDO output pin.
19	PC.0	I/O	MFP0	General purpose digital I/O pin.
	SPIO CLK	I/O	MFP2	SPIO serial clock pin.
	UART2 nCTS	1	MFP3	UART2 clear to Send input pin.
	USCI0_DAT0	I/O	MFP4	USCI0 data 0 pin.

Pin Name	Туре	MFP	Description
PC.1	I/O	MFP0	General purpose digital I/O pin.
CLKO	ο	MFP1	Clock Out
UART2 nRTS	ο	MFP3	UART2 request to Send output pin.
USCI0_DAT1	I/O	MFP4	USCIO data 1 pin.
ACMP1 WLAT	I	MFP5	Analog comparator 1 window latch input pin
PWM0 CH1	I/O	MFP6	PWM0 channel 1 output/capture input.
EBI AD9	I/O	MFP7	EBI address/data bus bit 9.
PC.2	I/O	MFP0	General purpose digital I/O pin.
SPIO SS	I/O	MFP2	SPIO slave select pin.
UART2 TXD	0	MFP3	UART2 data transmitter output pin.
USCIO CTL1	I/O	MFP4	USCIO control 1 pin.
ACMP1_0	0	MFP5	Analog comparator 1 output pin.
PWM0 CH2	I/O	MFP6	PWM0 channel 2 output/capture input.
EBI AD10	I/O	MFP7	EBI address/data bus bit 10.
PC.3	I/O	MFP0	General purpose digital I/O pin.
SPI0_MOSI	I/O	MFP2	SPI0 MOSI (Master Out, Slave In) pin.
UART2 RXD	I	MFP3	UART2 data receiver input pin.
USCIO CTLO	I/O	MFP5	USCIO control 0 pin.
PWM0 CH3	I/O	MFP6	PWM0 channel 3 output/capture input.
EBI AD11	I/O	MFP7	EBI address/data bus bit 11.
PC.4	I/O	MFP0	General purpose digital I/O pin.
SPI0 MISO	I/O	MFP2	SPIO MISO (Master In, Slave Out) pin.
I2C1 SCL	I/O	MFP3	I2C1 clock pin.
USCIO CLK	I/O	MFP5	USCIO clock pin.
PWM0_CH4	I/O	MFP6	PWM0 channel 4 output/capture input.
EBI AD12	I/O	MFP7	EBI address/data bus bit 12.
PE.O	I/O	MFP0	General purpose digital I/O pin.
SPIO CLK	I/O	MFP2	SPIO serial clock pin.
12C1 SDA	1/0	MFP3	I2C1 data input/output pin.
	Pin Name PC.1 CLKO UART2 nRTS USCI0_DAT1 ACMP1_WLAT PWM0_CH1 EBI_AD9 PC.2 SPI0_SS UART2_TXD USCI0_CTL1 ACMP1_O PWM0_CH2 EBI_AD10 PC.3 SPI0_MOSI UART2_RXD USCI0_CTL0 PWM0_CH3 EBI_AD11 PC.4 SPI0_MISO I2C1_SCL USCI0_CLK PWM0_CH4 EBI_AD12 PE.0 SPI0_CLK I2C1_SDA	Pin Name Type PC.1 I/O CLKO O UART2 nRTS O USCIO DAT1 I/O ACMP1 WLAT I PWM0 CH1 I/O EBI AD9 I/O PC.2 I/O SPIO SS I/O UART2 TXD O USCIO CTL1 I/O ACMP1 O O PWM0 CH2 I/O EBI AD10 I/O PC.3 I/O SPIO MOSI I/O VART2 RXD I USCIO CTLO I/O PWM0 CH3 I/O PC.4 I/O SPIO MISO I/O PC.4 I/O SPIO MISO I/O PWM0 CH4 I/O PC.1 I/O SPIO MISO I/O PWM0 CH4 I/O SPIO MISO I/O PWM0 CH4 I/O EBI AD12 I/O PE	Pin NameTypeMFPPC.1I/OMFP0CLKOOMFP1UART2 nRTSOMFP3USCIO DAT1I/OMFP4ACMP1 WLATIMFP5PWM0 CH1I/OMFP6EBI AD9I/OMFP7PC.2I/OMFP2USCIO CTL1I/OMFP3USCIO CTL1I/OMFP4ACMP1 OOMFP3USCIO CTL1I/OMFP6EBI AD10I/OMFP6EBI AD10I/OMFP7PC.3I/OMFP7SPIO MOSII/OMFP2UART2 RXDIMFP3USCIO CTL0I/OMFP5PWM0 CH3I/OMFP5PWM0 CH3I/OMFP5PWM0 CH3I/OMFP6EBI AD11I/OMFP5PWM0 CH3I/OMFP5PWM0 CH4I/OMFP5PWM0 CH4I/OMFP5PWM0 CH4I/OMFP5PWM0 CH4I/OMFP5PWM0 CH4I/OMFP5PWM0 CH4I/OMFP5PWM0 CH4I/OMFP5PWM0 CH4I/OMFP5PWM0 CH4I/OMFP5PUM0 CH4I/OMFP5PUO CLKI/OMFP2I2C1 SDAI/OMFP3

48	Pin Name	Туре	MFP	Description
25	PE.6	I/O	MFP0	General purpose digital I/O pin.
	ICE_CLK	I	MFP1	Serial wired debugger clock pin.
				Note: It is recommended to use 100 kO pull-up resistor on
	I2C0 SCL	I/O	MFP2	I2C0 clock pin.
	UARTO_RXD	I	MFP3	UARTO data receiver input pin.
26	PE.7	I/O	MFP0	General purpose digital I/O pin.
	ICE_DAT	0	MFP1	Serial wired debugger data pin.
				Note: It is recommended to use 100 kO pull-up resistor on
	12C0_SDA	I/O	MFP2	I2C0 data input/output pin.
	UARTO_TXD	0	MFP3	UARTO data transmitter output pin.

48	Pin Name	Туре	MFP	Description
32	USB VBUS	Р	MFP0	Power supply from USB host or HUB.
33	USB_D-	А	MFPO	USB differential signal D
34	USB D+	А	MFPO	USB differential signal D+.
35	PF.7	I/O	MFPO	General purpose digital I/O pin.
36	USB VDD33 CAP	А	MFP0	Internal power regulator output 3.3V decoupling pin.
	PB.12	I/O	MFP0	General purpose digital I/O pin.
	PWM1 CH1	I/O	MFP6	PWM1 channel 1 output/capture input.
37	PA.3	I/O	MFP0	General purpose digital I/O pin.
	UARTO RXD	I	MFP2	UARTO data receiver input pin.
	UART0_nRTS	о	MFP3	UARTO request to Send output pin.
	I2C0 SCL	I/O	MFP4	I2C0 clock pin.
	PWM1 CH2	I/O	MFP6	PWM1 channel 2 output/capture input.
	EBI AD3	I/O	MFP7	EBI address/data bus bit 3.
	USCI1 CLK	I/O	MFP8	USCI1 clock pin.
38	PA.2	I/O	MFP0	General purpose digital I/O pin.
	UARTO TXD	о	MFP2	UARTO data transmitter output pin.
	UARTO_nCTS	I	MFP3	UARTO clear to Send input pin.
	I2CO SDA	I/O	MFP4	I2C0 data input/output pin.
	PWM1 CH3	I/O	MFP6	PWM1 channel 3 output/capture input.
	EBI AD2	I/O	MFP7	EBI address/data bus bit 2.
	USCI1_CTL0	I/O	MFP8	USCI1 control 0 pin.
39	PA.1	I/O	MFPO	General purpose digital I/O pin.
	UART1_nRTS	0	MFP1	UART1 request to Send output pin.
	UART1 RXD	I	MFP3	UART1 data receiver input pin.
	USCI1_CTL1	I/O	MFP4	USCI1 control 1 pin.
	PWM1 CH4	I/O	MFP6	PWM1 channel 4 output/capture input.
	EBI_AD1	I/O	MFP7	EBI address/data bus bit 1.
40	PA.0	I/O	MFPO	General purpose digital I/O pin.
	UART1 nCTS	1	MFP1	UART1 clear to Send input pin.
	UART1 TXD	о	MFP3	UART1 data transmitter output pin.
	USCI1 CTL0	I/O	MFP4	USCI1 control 0 pin.
	PWM1 CH5	1/0	MFP6	PWM1 channel 5 output/capture input.
1	EBI ADO	1/0	MFP7	EBI address/data bus bit 0.
	INTO	I	MFP8	External interrupt 0 input pin.

Na P MFP0 Ground pin for digital circuit. 41 Vao P MFP0 Power supply for it/O ports and LDO source for internal PLL and digital 42 Avo P MFP0 Power supply for internal analog circuit. 43 Var A MFP0 ADC reference voltage input. 44 P6.0 IA MFP0 ADC reference voltage input. 44 P6.0 IA MFP0 ADC channel 0 analog input. VDET P0 IA MFP1 ADCO channel 0 analog input. VDET P0 IA MFP2 Voltage detector positive input 0 pin. UART2 RXD I MFP3 UART2 deta receiver input 1/oggle output pin. TN2 V/O MFP4 Timer2 event counter input 1/oggle output pin. TN2 V/O MFP4 Ellow byte write enable output pin. TN1 I MFP3 Ellow byte write enable output pin. TN1 I MFP3 Ellow byte write enable output pin. TN3 V/O MFP3 Ellow byte write enable output pin.	48	Pin Name	Туре	MFP	Description
41 Veo P MFP0 Power supply for I/O ports and LOO source for internal PLL and digital 42 Av.o. P MFP0 Power supply for internal analog circuit. 43 Ver A MFP0 Scene supply for internal analog circuit. 44 Ver A MFP0 General purpose digital I/O pin. 44 P6.0 A MFP0 General purpose digital I/O pin. 45 ACO CH0 A MFP0 Voitage detector positive input 0 pin. 44 P6.0 I MFP0 Voitage detector positive input 0 pin. 44 MCD CH0 A MFP0 USCI data 0 pin. 44 VO MFP0 USCI data 0 pin. 45 INTRL VO MFP0 Esternal interrupt 1 input pin. 46 VO MFP1 Timer2 event counter input/toggle output pin. 47 P61 VO MFP0 General purpose digital I/O pin. 48 P61 VO MFP1 ACO channel 1 analog input. 40CO CH1 A		Vss	Р	MFP0	Ground pin for digital circuit.
42 Avo. P MFPO Power supply for internal analog circuit. 43 Ver A MFPO ADC reference voltage input. 44 88.0 //O A MFPO General purpose digital i/O pin. ACC CHO A MFP1 ADCC channel 0 analog input. MED VDET PO A MFP2 Voltage detector positive input 0 pin. UART2 RXD I MFP3 UART2 data receiver input pin. TM2 VO MFP4 Timer2 event counter input/loggle output pin. TM2 VO MFP6 USC1 data 0 pin. USC1 DATO VO MFP6 USC1 data 0 pin. TM1 I MFP8 External interrupt 1 input pin. TM1 I MFP0 General purpose digital I/O pin. ADC0 CH1 A MFP1 ADC0 channel 1 analog input. VDET P1 A MFP2 Voltage detector positive input 1 pin. UART2 TXD O MFP3 VART2 data transmitter output pin. TMS VO MFP4	41	Vod	Ρ	MFP0	Power supply for I/O ports and LDO source for internal PLL and digital
43 Ver A MPPO ADC reference voltage input. 44 P8.0. //O AMFD General purpose digital I/O pin. ADC0 CH0 A MFP1 ADC0 channel 0 analog input. VDET P0 A MFP2 Voltage detector positive input 0 pin. UART2 RXD 1 MFP3 UART2 data receiver input 0 pin. TM2 //O MFP4 Timer2 event counter input //oggle output pin. TM2 //O MFP6 USC1 data 0 pin. TM2 //O MFP6 USC1 data 0 pin. TM1 1 MFP8 External interrupt 1 input pin. TM1 1 MFP8 External interrupt 1 input pin. TM1 1 MFP8 External interrupt 1 input pin. TM1 1 MFP1 ADC0 channel 1 analog input. VDET P1 A MFP1 ADC0 channel 1 analog input. VDET P1 A MFP2 Voltage detector positive input 1 pin. VD47 TM8 VO MFP3 UART2 data transmitter output pin. <t< td=""><td>42</td><td>AV_{DD}</td><td>Р</td><td>MFPO</td><td>Power supply for internal analog circuit.</td></t<>	42	AV _{DD}	Р	MFPO	Power supply for internal analog circuit.
44 PB.0 I/O MFP0 General purpose digital I/O pin. ADC0 CH0 A MFP1 ADC0 channel 0 analog input. VDET P0 A MFP2 Voltage detector positive input 0 pin. UART2 RXD I MFP3 UART2 data receiver input pin. TM2 I/O MFP4 Timer2 event counter input/toggle output pin. USCI1 DAT0 I/O MFP6 USCI1 data 0 pin. EBI mWRL O MFP7 EBI low byte write enable output pin. INT1 I MFP8 External interrupt 1 input pin. TM1 EXT I/O MFP10 Timer1 external capture input/toggle output pin. 45 P8.1 I/O MFP10 Timer1 external capture input/toggle output pin. VDET P1 A MFP2 Voltage detector positive input 1 pin. UART2 TXD O MFP4 Timer3 event counter input/toggle output pin. TM3 I/O MFP6 PWM0 counter synchronous trigger output pin. UART2 TXD O MFP6 PWM0 counter synchronous trigger output pin. UART2 TX	43	Vref	А	MFP0	ADC reference voltage input.
ADC0 CH0 A MFP1 ADC0 channel 0 analog input. VDET P0 A MFP2 Voltage detector positive input 0 pin. UART2 RXD 1 MFP3 UART2 data receiver input fun. TM2 V/0 MFP4 Timer2 event counter input/toggle output pin. TM2 V/0 MFP6 USC11 data 0 pin. EBI nWRL O MFP6 USC11 data 0 pin. TM1 EXT I/0 MFP1 EBI ow byte write enable output pin. TM1 EXT I/0 MFP1 Timer1 external capture input/toggle output pin. 45 PB.1 I/0 MFP1 ADC0 channel 1 analog input. VDET P1 A MFP2 Voltage detector positive input 1 pin. 42 VDET P1 A MFP2 Voltage detector positive input 1 pin. VDET P1 A MFP2 Voltage detector positive input 1 pin. VART2 TXD O MFP2 EBI inpl byte write enable output pin. TM3 I/0 MFP3 EBI inpl byte write enable output pin. VB40 counter synchronous trigger output pin. <td< td=""><td>44</td><td>РВ.0</td><td>I/O</td><td>MFP0</td><td>General purpose digital I/O pin.</td></td<>	44	РВ.0	I/O	MFP0	General purpose digital I/O pin.
VDET P0 A MFP2 Voltage detector positive input 0 pin. UART2 RXD 1 MFP3 UART2 data receiver input pin. TM2 1/0 MFP6 USCI1 data 0 pin. EBI nWRL 0 MFP6 USCI1 data 0 pin. EBI nWRL 0 MFP6 EBI low byte write enable output pin. TM1 1 MFP6 Esternal interrupt 1 input pin. TM1 1/0 MFP0 General purpose digital //O pin. ADC0 CH1 A MFP1 ADC0 channel 1 analog input. VDET P1 A MFP2 Voltage detector positive input 1 pin. VART2 TXD 0 MFP3 UART2 data transmitter output pin. TM3 1/0 MFP4 Timer3 event counter input/toggle output pin. VDET P1 0 MFP3 UART2 data transmitter output pin. VM0 SVNC OUT 0 MFP4 Timer3 event counter input/toggle output pin. VM0 SVNC OUT 0 MFP3 UART2 data transmitter output pin. USCI1 DAT1 1/0 MFP4 UASC1 data 1 pin.		ADC0_CH0	А	MFP1	ADC0 channel 0 analog input.
UART2 RXD I MFP3 UART2 data receiver input pin. TM2 U/O MFP4 Timer2 event counter input/toggle output pin. USG1 DATO U/O MFP6 USC11 data 0 pin. EBI nWRL O MFP7 EBI low byte write enable output pin. INT1 I MFP3 External interrupt 1 input pin. TM2 I/O MFP0 Timer1 external capture input/toggle output pin. 45 P8.1 I/O MFP1 ADCO channel 1 analog input. VOE P1 A MFP2 Voltage detector positive input 1 pin. VART2 TXD O MFP3 UART2 data transmitter output pin. TM3 I/O MFP4 Timer3 event counter input/toggle output pin. PWMO SYNC OUT O MFP5 EMI high byte write enable output pin. VOI IDAT1 I/O MFP6 SCI data 1 pin. 46 P8.2 I/O MFP3 USCI data 1 pin. 47 P8.2 I/O MFP3 SPI occhannel 2 analog input. 48 P8.2 I/O M		VDET PO	А	MFP2	Voltage detector positive input 0 pin.
M2 I/O MFP4 Timer2 event counter input/toggle output pin. USCI DATO I/O MFP6 USCI data 0 pin. EBI nWRL O MFP7 EBI low byte write enable output pin. NTI I MFP8 External interrupt 1 input pin. NTI I/O MFP0 Finer1 external capture input/toggle output pin. MACO CH1 A MFP0 General purpose digital I/O pin. ADCO CH1 A MFP1 ADCO channel 1 analog input. VDET P1 A MFP2 Voltage detector positive input 1 pin. UART2 TXD O MFP3 UART2 data transmitter output pin. TM3 U/O MFP4 Timer3 event counter input/toggle output pin. VM0 SYNC OUT O MFP6 PUMO counter synchronous trigger output pin. EBI nWRH O MFP6 PUMO counter synchronous trigger output pin. V/O MFP6 SPI1 data 1 pin. ADCO CH2 A MFP1 ADCO channel 2 analog input. SPI1 CLK I/O MFP3 SPI1 serial clock pin. <t< td=""><td></td><td>UART2_RXD</td><td>I</td><td>MFP3</td><td>UART2 data receiver input pin.</td></t<>		UART2_RXD	I	MFP3	UART2 data receiver input pin.
USCI1 DATO I/O MFP6 USCI1 data 0 pin. EBI nWRL O MFP7 EBI low byte write enable output pin. NT1 I MFP8 External interrupt 1 input pin. MI EXT I/O MFP10 Timer1 external capture input/toggle output pin. 45 P8.1 I/O MFP1 ADC0 chanel 1 analog input. ADC0 CH1 A MFP2 Voltage detector positive input 1 pin. VDET P1 A MFP2 Voltage detector positive input 1 pin. VART2 TXD O MFP3 UART2 data transmitter output pin. TM3 I/O MFP4 Timer3 event counter input/toggle output pin. PWM0 SYNC OUT O MFP3 USCI1 data 1 pin. VSCI1 DAT1 I/O MFP4 Stord at 1 pin. VSCI1 DAT1 I/O MFP3 USCI1 data 1 pin. 46 P8.2 I/O MFP4 Stord at 1 pin. 50 CLX I/O MFP3 SPI0 serial clock pin. Stord at 1 pin. 511 CLX I/O MFP3 SPI0 serial clock p		TM2	I/O	MFP4	Timer2 event counter input/toggle output pin.
EBI NVRL O MFP7 EBI low byte write enable output pin. INT1 I MFP8 External interrupt 1 input pin. TM1 EXT I/O MFP0 General purpose digital I/O pin. 45 PB.1 I/O MFP1 ADC0 channel 1 analog input. 45 ADC0 CH1 A MFP1 ADC0 channel 1 analog input. 46 VDET P1 A MFP2 Voltage detector positive input 1 pin. 47 VDET V1 A MFP4 Timer3 event counter input/toggle output pin. 48 VDET V1 O MFP4 Timer3 event counter input/toggle output pin. 47 MMO SYNC OUT O MFP6 PWM0 counter synchronous trigger output pin. 48 PB.2 I/O MFP6 General purpose digital I/O pin. 44 PB.2 I/O MFP3 SPI1 serial clock pin. 45 PB.2 I/O MFP3 SPI1 serial clock pin. 46 PB.2 I/O MFP3 SPI1 serial clock pin. 47 NBRAKE0 I		USCI1_DAT0	I/O	MFP6	USCI1 data 0 pin.
INT1IMFP8External interrupt 1 input pin.TM1 EXTi/OMFP10Timer1 external capture input/toggle output pin.45PB.1i/OMFP0General purpose digital I/O pin.ADC0 CH1AMFP1ADC0 channel 1 analog input.VDET P1AMFP2Voltage detector positive input 1 pin.UART2 TXDOMFP3UART2 data transmitter output pin.TM3i/OMFP4Timer3 event counter input/toggle output pin.PWM0 SYNC OUTOMFP6PWM0 counter synchronous trigger output pin.EBI nWRHOMFP6SVC1 data 1 pin.46PB.2i/OMFP0General purpose digital I/O pin.47ADC0 CH2AMFP1ADC0 channel 2 analog input.5PI0 CLKi/OMFP3SPI1 serial clock pin.5PI1 CLKi/OMFP3SPI1 serial clock pin.48i/OMFP3SPI1 serial clock pin.49i/OMFP3SPI1 serial clock pin.41i/OMFP3SPI1 serial clock pin.42i/OMFP3SPI1 serial clock pin.43i/OMFP4USCI0 data 0 pin.44i/OMFP3SPI1 serial clock pin.45i/OMFP4SICI data 1 opin.46i/OMFP3SPI1 serial clock pin.47i/OMFP4USCI0 data 0 pin.48i/OMFP3SICI data 0 pin.49i/OMFP4SICI data 0 pin.41i/O		EBI nWRL	о	MFP7	EBI low byte write enable output pin.
TM1 EXTI/OMFP10Timer1 external capture input/toggle output pin.45PB.1i/OMFP0General purpose digital I/O pin.ADC0 CH1AMFP1ADC0 channel 1 analog input.VDET P1AMFP2Voltage detector positive input 1 pin.UART2 TXDOMFP3UART2 data transmitter output pin.TM3I/OMFP4Timer3 event counter input/toggle output pin.PWM0 SYNC OUTOMFP6PWM0 counter synchronous trigger output pin.EBI nWRHOMFP6EBI high byte write enable output pinUSC1 DAT1I/OMFP0General purpose digital I/O pin.46PB.2I/OMFP2SPI0 serial clock pin.590 CLKI/OMFP3SPI1 serial clock pin.5911 CLKI/OMFP4UART1 data receiver input pin.TM BRAKE0IMFP6TM BRAKE0 I Timer Brake * input pin.EBI nCSDOMFP3EBI chip select 0 output pin.USC10 DAT0I/OMFP4USC10 data 0 pin.TM2 EXTI/OMFP4USC10 data 0 pin.TM2 EXTI/OMFP4USC10 data 0 pin.47PB.3I/OMFP10Timer2 external capture input/toggle output pin.47PB.3I/OMFP10General purpose digital I/O pin.48ADC0 CH3AMFP10General purpose digital I/O pin.		INT1	I	MFP8	External interrupt 1 input pin.
45 PB.1 I/O MFP0 General purpose digital I/O pin. ADC0 CH1 A MFP1 ADC0 channel 1 analog input. VDET P1 A MFP2 Voltage detector positive input 1 pin. UART2 TXD O MFP3 UART2 data transmitter output pin. TM3 I/O MFP4 Timer3 event counter input/toggle output pin. PWM0 SYNC OUT O MFP6 PWM0 counter synchronous trigger output pin. EBI nWRH O MFP7 EBI high byte write enable output pin. USC11 DAT1 I/O MFP8 USC11 data 1 pin. 46 PB.2 I/O MFP1 ADC0 channel 2 analog input. 5910 CLK I/O MFP2 SPI0 serial clock pin. 5911 CLK I/O MFP3 SPI1 serial clock pin. 1/M BRAKE0 I MFP6 TM BRAKE0 liner Brake * input pin. 6EI nCS0 O MFP7 EBI chip select 0 output pin. 1/O MFP3 SICI0 data 0 pin. 1/O MFP4 USCI0 data 0 pin. 1/O MFP4 UART1 data receiver input pin. 1/M BRAKE0 I MFP6 TM BRAKE0 liner Brake * input pin. 1/O MFP6 TM BRAKE0 liner Brake * input pin. 1/O		TM1 EXT	I/O	MFP10	Timer1 external capture input/toggle output pin.
ADC0 CH1 A MFP1 ADC0 channel 1 analog input. VDET P1 A MFP2 Voltage detector positive input 1 pin. UART2 TXD O MFP3 UART2 data transmitter output pin. TM3 I/O MFP4 Timer3 event counter input/toggle output pin. PWM0 SYNC OUT O MFP6 PWM0 counter synchronous trigger output pin. EBI nWRH O MFP6 PWM0 counter synchronous trigger output pin. VSCI1 DAT1 I/O MFP6 General purpose digital I/O pin. 46 PB.2 I/O MFP1 ADC0 channel 2 analog input. SPI0 CLK I/O MFP2 SPI0 serial clock pin. SPI1 CLK I/O MFP3 SPI1 serial clock pin. UART1 RXD I MFP6 TM BRAKE0 ITimer Brake * input pin. EBI nCS0 O MFP7 EBI chip select 0 output pin. USCI0 DAT0 I/O MFP6 TM BRAKE0 ITimer Brake * input pin. TM2 EXT I/O MFP1 EBI chip select 0 output pin. 47 PB.3 I/O MFP0<	45	PB.1	I/O	MFPO	General purpose digital I/O pin.
VDET P1 A MFP2 Voltage detector positive input 1 pin. UART2 TXD O MFP3 UART2 data transmitter output pin. TM3 I/O MFP4 Timer3 event counter input/toggle output pin. PWM0 SYNC OUT O MFP6 PWM0 counter synchronous trigger output pin. EBI nWRH O MFP7 EBI high byte write enable output pin USCI1 DAT1 I/O MFP8 USCI1 data 1 pin. 46 PB.2 I/O MFP0 General purpose digital I/O pin. ADC0 CH2 A MFP1 ADC0 channel 2 analog input. SPI0 CLK I/O MFP3 SPI1 serial clock pin. VART1 RXD I MFP4 UART1 data receiver input pin. TM BRAKE0 I MFP4 UART1 data receiver input pin. EBI nCS0 O MFP7 EBI chip select 0 output pin. TM2 EXT I/O MFP3 USCI0 data 0 pin. TM2 EXT I/O MFP1 Timer2 external capture input/toggle output pin. 47 PB.3 I/O MFP1 A		ADC0 CH1	А	MFP1	ADC0 channel 1 analog input.
UART2 TXD O MFP3 UART2 data transmitter output pin. TM3 I/O MFP4 Timer3 event counter input/toggle output pin. PWM0 SYNC OUT O MFP6 PWM0 counter synchronous trigger output pin. EBI nWRH O MFP7 EBI high byte write enable output pin. USCI1 DAT1 I/O MFP3 USCI1 data 1 pin. 46 PB.2 I/O MFP0 General purpose digital I/O pin. ADC0 CH2 A MFP1 ADC0 channel 2 analog input. SPI0 CLK I/O MFP3 SPI1 serial clock pin. SPI1 CLK I/O MFP3 SPI1 serial clock pin. TM BRAKE0 1 MFP4 UART1 data receiver input pin. EBI nCS0 O MFP7 EBI chip select 0 output pin. TM2 EXT I/O MFP3 USCI0 data 0 pin. TM2 EXT I/O MFP3 EBI chip select 0 output pin. 47 PB.3 I/O MFP0 General purpose digital I/O pin. 47 PB.3 I/O MFP1 ADC0 channel		VDET_P1	А	MFP2	Voltage detector positive input 1 pin.
TM3I/OMFP4Timer3 event counter input/toggle output pin.PWM0 SYNC OUTOMFP6PWM0 counter synchronous trigger output pin.EBI nWRHOMFP7EBI high byte write enable output pinUSC11 DAT1I/OMFP8USC11 data 1 pin.46PB.2I/OMFP0General purpose digital I/O pin.ADC0 CH2AMFP1ADC0 channel 2 analog input.SPI0 CLKI/OMFP3SPI0 serial clock pin.SPI1 CLKI/OMFP4UART1 data receiver input pin.TM BRAKE0IMFP6TM BRAKE0 I Timer Brake * input pin.EBI nCSOOMFP7EBI chip select 0 output pin.USCI0 DAT0I/OMFP10Timer2 external capture input/toggle output pin.47PB.3I/OMFP10General purpose digital I/O pin.47PB.3I/OMFP10ADC0 channel 3 analog input.		UART2 TXD	ο	MFP3	UART2 data transmitter output pin.
PWM0 SYNC OUT O MFP6 PWM0 counter synchronous trigger output pin. EBI nWRH O MFP7 EBI high byte write enable output pin USCI1 DAT1 I/O MFP8 USCI1 data 1 pin. 46 PB.2 I/O MFP0 General purpose digital I/O pin. ADC0 CH2 A MFP1 ADC0 channel 2 analog input. SPI0 CLK I/O MFP3 SPI0 serial clock pin. SPI1 CLK I/O MFP4 UART1 data receiver input pin. UART1 RXD I MFP6 TM BRAKE0 ITimer Brake * input pin. EBI nCS0 O MFP3 USCI0 data 0 pin. USCI0 DAT0 I/O MFP4 USCI0 data 0 pin. 47 PB.3 I/O MFP1 ADC0 channel 3 analog input.		TM3	I/O	MFP4	Timer3 event counter input/toggle output pin.
EBI nWRH O MFP7 EBI high byte write enable output pin USCI1 DAT1 I/O MFP8 USCI1 data 1 pin. 46 PB.2 I/O MFP0 General purpose digital I/O pin. ADC0 CH2 A MFP1 ADC0 channel 2 analog input. SPI0 CLK I/O MFP2 SPI0 serial clock pin. SPI1 CLK I/O MFP3 SPI1 serial clock pin. VART1 RXD I MFP6 TM BRAKE0 I Timer Brake * input pin. TM BRAKE0 I MFP7 EBI chip select 0 output pin. USCI0 DAT0 I/O MFP8 USCI0 data 0 pin. TM2 EXT I/O MFP10 Timer2 external capture input/toggle output pin. 47 PB.3 I/O MFP0 General purpose digital I/O pin. 47 PB.3 I/O MFP1 ADC0 channel 3 analog input.		PWM0 SYNC OUT	ο	MFP6	PWM0 counter synchronous trigger output pin.
USCI1 DAT1 I/O MFP8 USCI1 data 1 pin. 46 PB.2 I/O MFP0 General purpose digital I/O pin. ADC0 CH2 A MFP1 ADC0 channel 2 analog input. SPI0 CLK I/O MFP2 SPI0 serial clock pin. SPI1 CLK I/O MFP3 SPI1 serial clock pin. VART1 RXD I MFP4 UART1 data receiver input pin. TM BRAKE0 I MFP6 TM BRAKE0 I Timer Brake * input pin. EBI nCS0 O MFP7 EBI chip select 0 output pin. USCI0 DAT0 I/O MFP10 Timer2 external capture input/toggle output pin. 47 PB.3 I/O MFP1 ADC0 channel 3 analog input.		EBI nWRH	ο	MFP7	EBI high byte write enable output pin
46PB.2I/OMFP0General purpose digital I/O pin.ADCO CH2AMFP1ADCO channel 2 analog input.SPI0 CLKI/OMFP2SPI0 serial clock pin.SPI1 CLKI/OMFP3SPI1 serial clock pin.VART1 RXDIMFP4UART1 data receiver input pin.TM BRAKE0IMFP6TM BRAKE0 I Timer Brake * input pin.EBI nCS0OMFP7EBI chip select 0 output pin.USCI0 DATOI/OMFP8USCI0 data 0 pin.TM2 EXTI/OMFP10Timer2 external capture input/toggle output pin.47PB.3I/OMFP0ADCO CH3AMFP1ADCO channel 3 analog input.		USCI1 DAT1	I/O	MFP8	USCI1 data 1 pin.
ADC0_CH2AMFP1ADC0 channel 2 analog input.SPI0_CLKI/OMFP2SPI0 serial clock pin.SPI1_CLKI/OMFP3SPI1 serial clock pin.UART1_RXDIMFP4UART1 data receiver input pin.TM_BRAKE0IMFP6TM_BRAKE0 I Timer Brake * input pin.EBI_NCS0OMFP7EBI chip select 0 output pin.USCI0_DAT0I/OMFP8USCI0 data 0 pin.TM2_EXTI/OMFP10Timer2 external capture input/toggle output pin.47PB.3I/OMFP0ADC0_CH3AMFP1ADC0 channel 3 analog input.	46	PB.2	I/O	MFP0	General purpose digital I/O pin.
SPI0 CLK I/O MFP2 SPI0 serial clock pin. SPI1 CLK I/O MFP3 SPI1 serial clock pin. UART1 RXD I MFP4 UART1 data receiver input pin. TM_BRAKE0 I MFP6 TM_BRAKE0 I Timer Brake * input pin. EBI nCS0 O MFP7 EBI chip select 0 output pin. USCI0_DAT0 I/O MFP8 USCI0 data 0 pin. TM2_EXT I/O MFP0 General purpose digital I/O pin. 47 PB.3 I/O MFP1 ADC0 cH3		ADC0_CH2	А	MFP1	ADC0 channel 2 analog input.
SPI1 CLK I/O MFP3 SPI1 serial clock pin. UART1 RXD I MFP4 UART1 data receiver input pin. TM_BRAKE0 I MFP6 TM_BRAKE0 I Timer Brake * input pin. EBI nCS0 O MFP7 EBI chip select 0 output pin. USCI0_DATO I/O MFP8 USCI0 data 0 pin. TM2_EXT I/O MFP10 Timer2 external capture input/toggle output pin. 47 PB.3 I/O MFP0 General purpose digital I/O pin. 47 ADC0_CH3 A MFP1 ADC0 channel 3 analog input.		SPIO CLK	1/0	MFP2	SPIO serial clock pin.
UART1 RXD I MFP4 UART1 data receiver input pin. TM_BRAKE0 I MFP6 TM_BRAKE0 Timer Brake * input pin. EBI_nCS0 O MFP7 EBI chip select 0 output pin. USCI0_DAT0 I/O MFP8 USCI0 data 0 pin. TM2_EXT I/O MFP10 Timer2 external capture input/toggle output pin. 47 PB.3 I/O MFP0 General purpose digital I/O pin. ADC0_CH3 A MFP1 ADC0 channel 3 analog input.		SPI1 CLK	1/0	MFP3	SPI1 serial clock pin.
TM_BRAKEO I MFP6 TM_BRAKEO I Timer Brake * input pin. EBI_NCSO O MFP7 EBI chip select 0 output pin. USCI0_DATO I/O MFP8 USCI0 data 0 pin. TM2_EXT I/O MFP10 Timer2 external capture input/toggle output pin. 47 PB.3 I/O MFP0 General purpose digital I/O pin. ADC0_CH3 A MFP1 ADC0 channel 3 analog input.		UART1 RXD		MFP4	UART1 data receiver input pin.
EBI nCS0 O MFP7 EBI chip select 0 output pin. USCI0_DAT0 I/O MFP8 USCI0 data 0 pin. TM2_EXT I/O MFP10 Timer2 external capture input/toggle output pin. 47 PB.3 I/O MFP0 General purpose digital I/O pin. ADC0_CH3 A MFP1 ADC0 channel 3 analog input.		TM BRAKEO	1	MFP6	TM BRAKEO I Timer Brake * input pin.
Lar Mede D MMM Construction of completeness of completenes of completeness of completeness of completeness of com		FBL nCS0	0	MFP7	EBL chin select 0 output nin.
TM2 EXT I/O MFP10 Timer2 external capture input/toggle output pin. 47 PB.3 I/O MFP0 General purpose digital I/O pin. ADC0 CH3 A MFP1 ADC0 channel 3 analog input.			1/0	MEP8	USCIO data O nin.
47 PB.3 I/O MFP0 General purpose digital I/O pin. ADC0 CH3 A MFP1 ADC0 channel 3 analog input.		TM2_FXT	1/0	MEP10	Timer? external canture input/toggle output nin
ADC0 CH3 A MFP1 ADC0 channel 3 analog input.	47	PB 3	1/0	MEPO	General nurnose digital I/O nin
				MED1	
SDIO MISO I/O MED2 SDIO MISO (Master In Slave Out) nin			1/0	MEDO	SDIO MISO (Master In Slave Out) nin

48	Pin Name	Туре	MFP	Description
	SPI1_MISO	I/O	MFP3	SPI1 MISO (Master In, Slave Out) pin.
	UART1 TXD	0	MFP4	UART1 data transmitter output pin.
	TM_BRAKE1	I	MFP6	TM_BRAKE1 I Timer Brake * input pin.
	EBI ALE	0	MFP7	EBI address latch enable output pin.
	USCI0_DAT1	I/O	MFP8	USCI0 data 1 pin.
	TMO EXT	I/O	MFP10	Timer0 external capture input/toggle output pin.
48	PB.4	I/O	MFP0	General purpose digital I/O pin.
	ADC0 CH4	A	MFP1	ADC0 channel 4 analog input.
	SPIO_SS	I/O	MFP2	SPIO slave select pin.
	SPI1 SS	I/O	MFP3	SPI1 slave select pin.
	UART1 nCTS	I	MFP4	UART1 clear to Send input pin.
	ACMPO N	А	MFP5	Analog comparator 0 negative input pin.
	EBI AD7	I/O	MFP7	EBI address/data bus bit 7.
	USCIO CTL1	I/O	MFP8	USCIO control 1 pin.
	UART2 RXD	1	MFP9	UART2 data receiver input pin.
	TM1_EXT	I/O	MFP10	Timer1 external capture input/toggle output pin.