



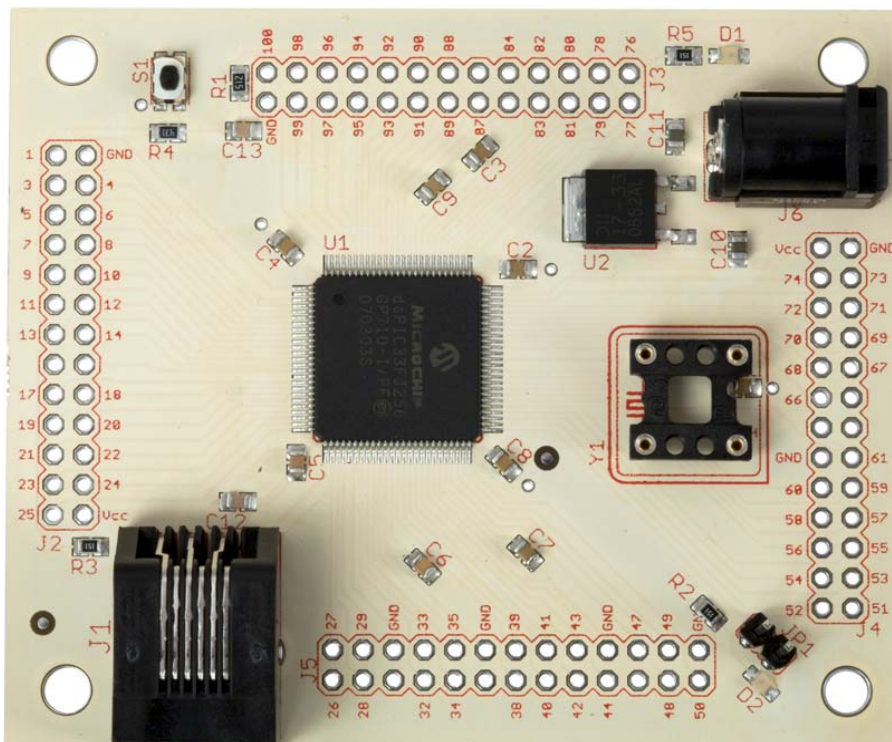
DKSB1001B

dsPIC33 Breakout Board

02 July 2009

Features

- Microchip DSPIC33FJ256GP710-I/PF-ND
- Small footprint: 3.1" x 2.5"
- Half-size DIP oscillator socket
- All I/O pins available
- Extra power pins available
- Large input voltage range: 5V-15V
- Indicator LED for programming checks
- RJ-11 jack for ICD2 programming and debugging
- MCLR on external switch or pin



Quick Start

The board can be programmed with the “blink” program. This program implements a delay routine that toggles Port F, pin 3. The frequency of the loop is approximately 1Hz for the LED signal. The program is designed to test the programmability of the chip and minimally test its operation. This program can be re-installed at any time and is available on Digi-Key’s website. The “blink” program is also included in Appendix A.

Functional Description

The DKSB1001B is a break out board for Microchip’s dsPIC33 in a 100 pin TQFP. This board offers developers access to a high pin count, small package part, while maintaining maximum flexibility. Each microcontroller pin has its own external output pin on the board. Every I/O is accessible via the unpopulated 0.1” headers.

Power

The 5V regulator has large input range of 5-15VDC. It can supply a maximum of 1.0A.

LEDs

The board has two LEDs. D1 is a power indicator. D2 is a general purpose LED available to the developer. Removing JP1 disconnects D2 from the microcontroller’s I/O pin.

Reset

The on-board master reset S1 allows for easy restart of applications. A reset pin is also available on header J2.

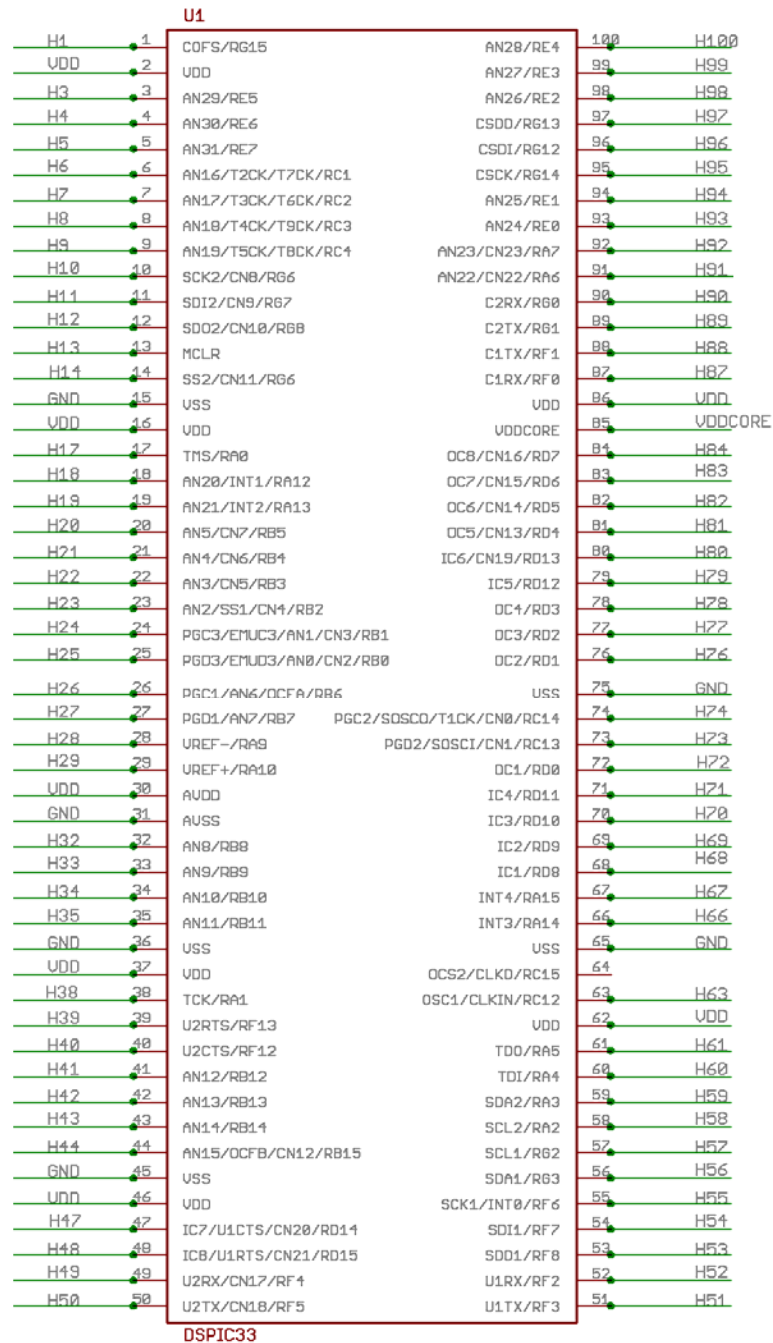
Oscillator

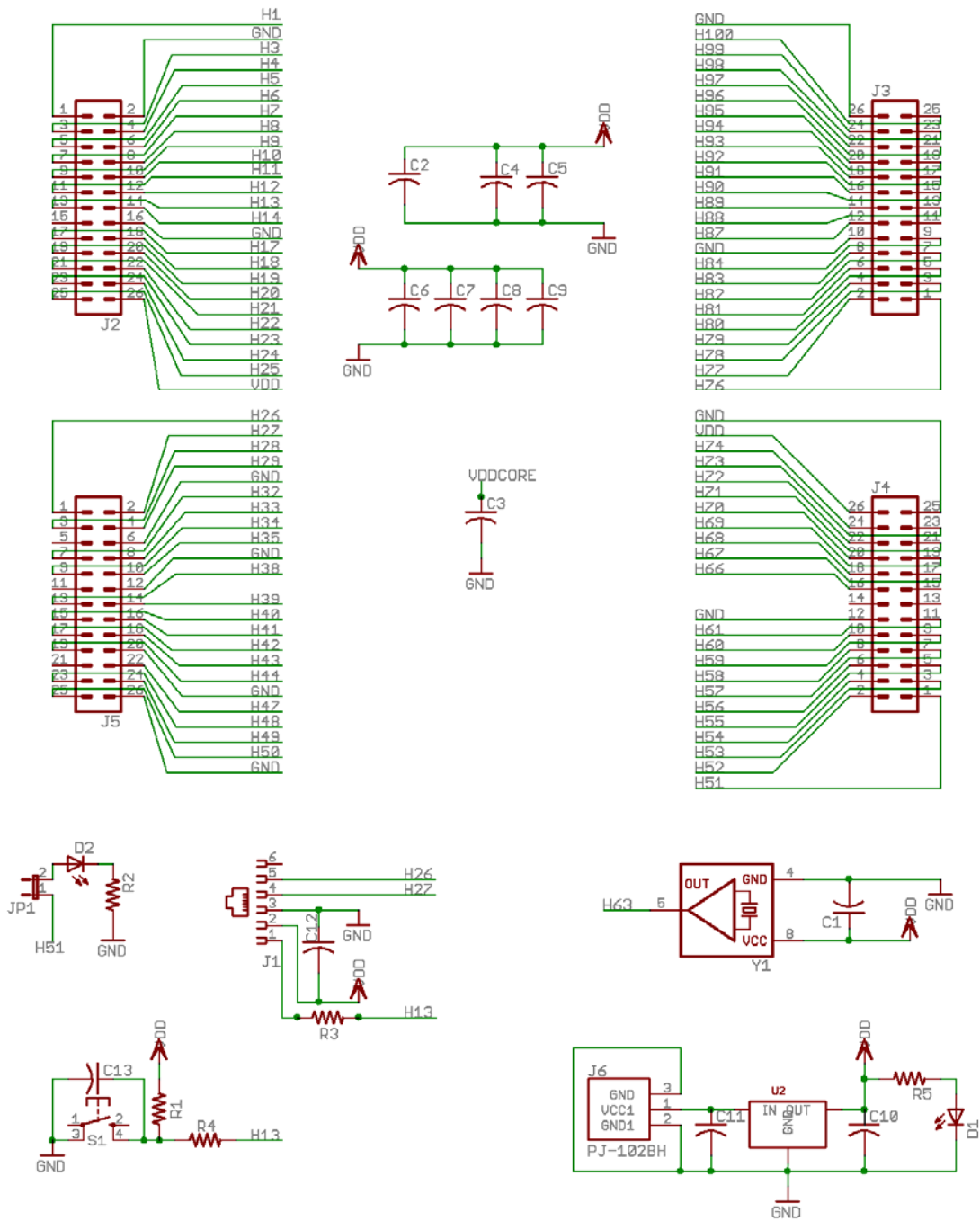
Since it has an internal oscillator, the microcontroller can operate without an external oscillator. However, an external half-size DIP oscillator socket is provided for applications that require precision clocking. Oscillator frequencies up to 50 MHz are available from Digi-Key.

Programming and Debugging

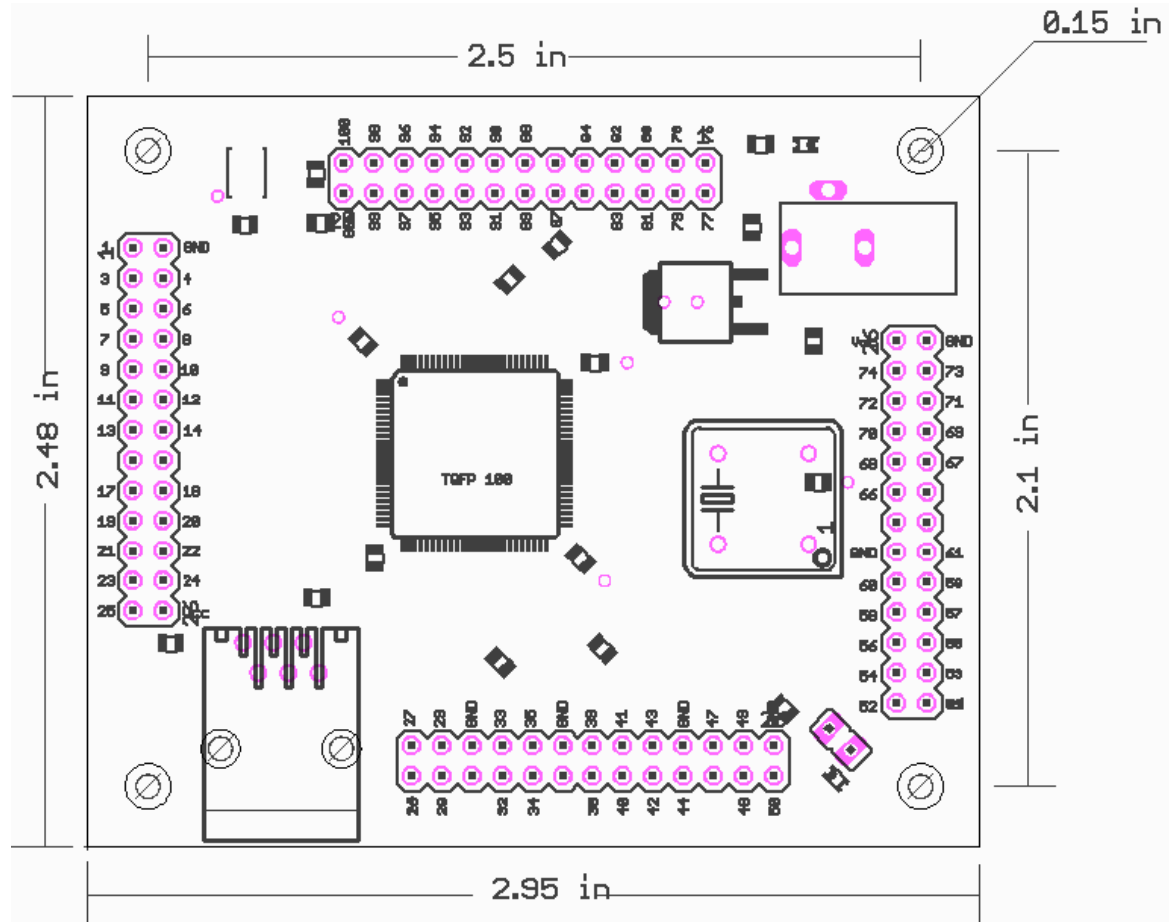
The board employs an RJ-11 socket for programming and debugging with Microchip’s standard development tools.

Schematics





Layout



Bill of Materials

Ref Des	Part No.	Description	Manufacturers #
U1	DSPIC33FJ256GP710-I/PF-ND	Microchip dsPIC or PIC24 in 100pin 14X14mm	DSPIC33FJ256GP710-I/PF
J6	CP-102BH-ND	CONN PWR JACK 2.5X5.5MM HIGH CUR	PJ-102BH
U2	AP1117D33LDICT-ND	IC REG LDO 1.0A 3.3V TO-252	AP1117D33L-13
Y1	A463-ND	OSCILLATOR SOCKET HALF SIZE 4PIN	1108800
S1	401-1426-1-ND	SWITCH TACT SPST-NO 120GF GW	KMR211GLFS
D1,D2	L71514CT-ND	LED 637NM RED DIFF SMD 0805	CMDA5AR7D1S
J1	A31422-ND	CONN MOD JACK 6-6 RT/A PCB 50AU	5555165-1
JP1	WM8072-ND	CONN HEADER 2POS .100" STR TIN	90120-0122
C1,C2,C3,C4,C5 ,C6,C7,C8,C9	399-1284-1-ND	CAP 1.0UF 16V CERAMIC X7R 0805	C0805C105K4RACTU
C10,C11	587-1295-1-ND	CAP CER 10UF 16V X5R 0805	EMK212BJ106KG-T
C12,C13	PCC1812CT-ND	CAP .1UF 16V CERAMIC X7R 0805	ECJ-2VB1C104K
R1	311-5.1KARCT-ND	RES 5.1K OHM 1/8W 5% 0805 SMD	RC0805JR-075K1L
R2,R3,R5	P150ACT-ND	RES 150 OHM 1/8W 5% 0805 SMD	ERJ-6GEYJ151V
R4	311-470ARCT-ND	RES 470 OHM 1/8W 5% 0805 SMD	RC0805JR-07470RL
JS1	S9001-ND	CONN JUMPER SHORTING GOLD FLASH	SPC02SYAN

Appendix A: Sample Blinking Code

```

/*****
* File Name:      DKSB1001B.c
* Dependencies:   p33FJ256GP710.h
* Processor:      dsPIC33
* Compiler:       MPLAB® C30 v2.01 or higher
*
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*
* REVISION HISTORY:
* ~~~~~~
* Author      Date      Comments on this revision
* ~~~~~~
* JP          3/15/07    simple blinker
*****/

#include "p33FJ256GP710.h"
#include "delay.h"

_FGS(GWRP_OFF & GCP_OFF);
_FOSCSSEL(FNOSC_FRC);
_FOSC(FCKSM_CSDCMD & OSCIOFNC_OFF & POSCMD_XT);
_FWDT(FWDTEN_OFF);

int main ( void )
{
    /* set LED pins (RF3) as outputs */
    TRISF = 0xFFFF7;

    /* Infinite Loop */
    while ( 1 )
    {
        PORTFbits.RF3 = !PORTFbits.RF3;
        Delay(300);
    };
}

```

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