



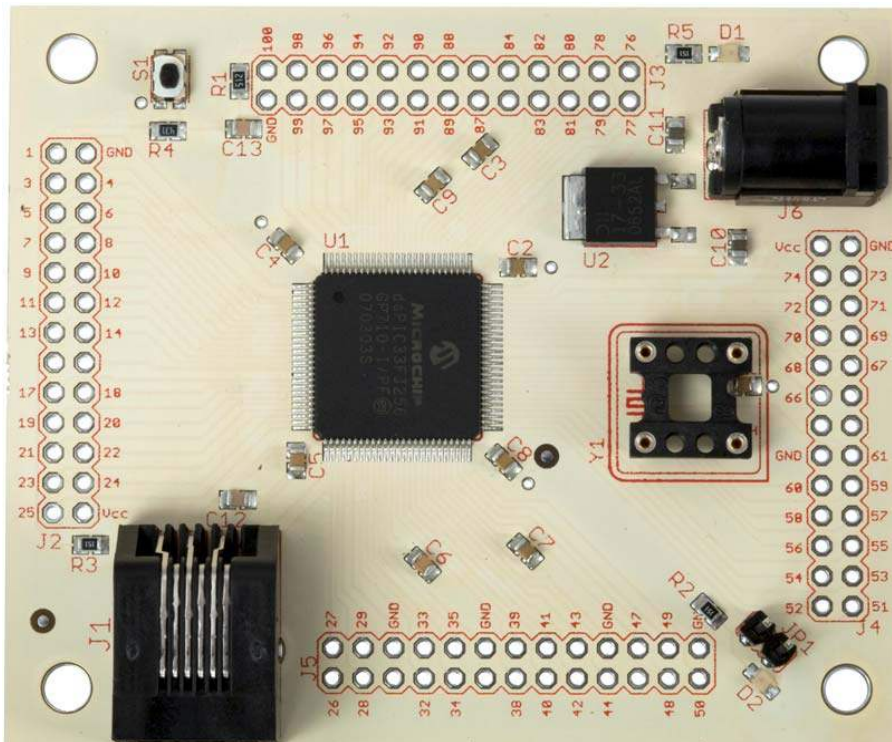
DKSB1001B

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.

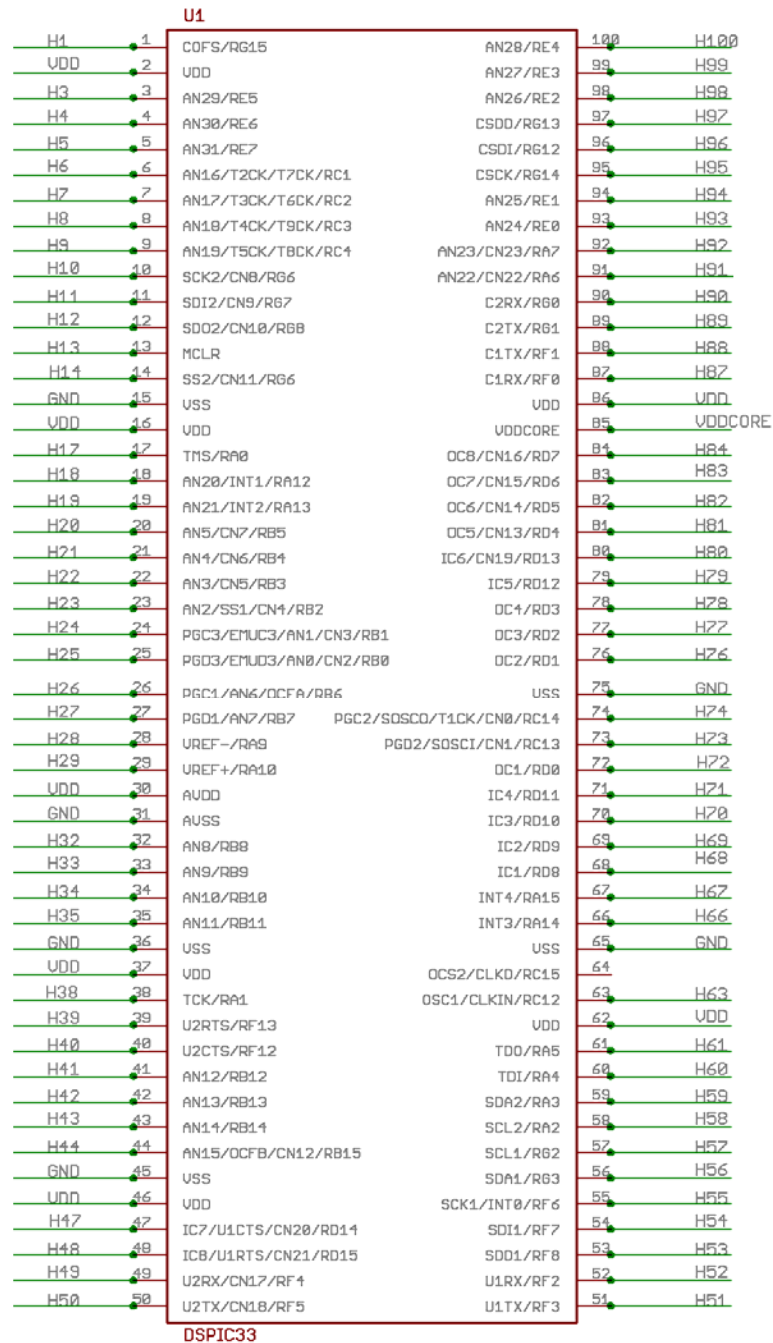
Oscillator

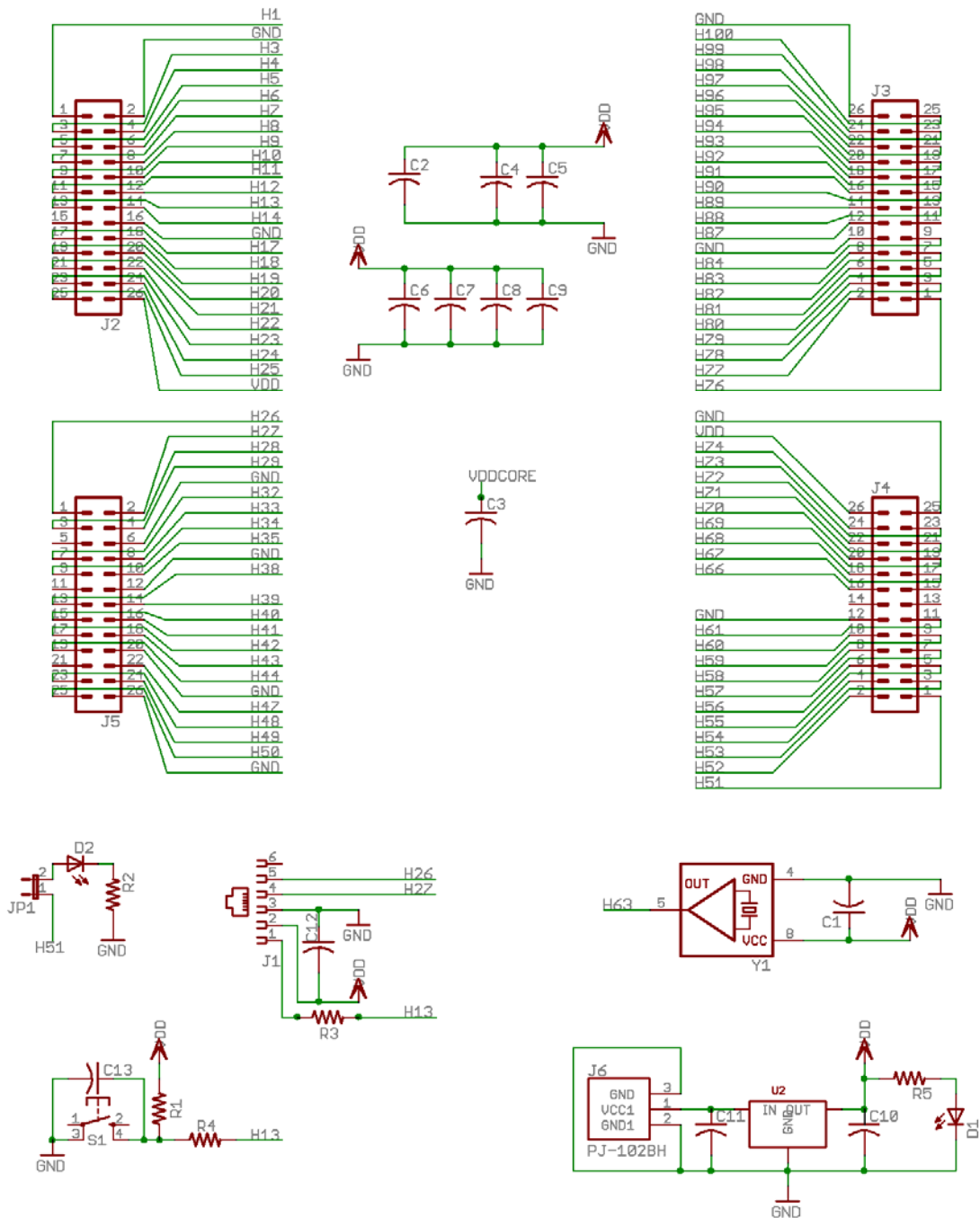
Since it has an internal oscillator, the microcontroller can operate without an external oscillator. However, an external half-size DIP oscillator socket is provided for applications that require precision clocking. Oscillator frequencies up to 50 MHz are available from Digi-Key.

Programming and Debugging

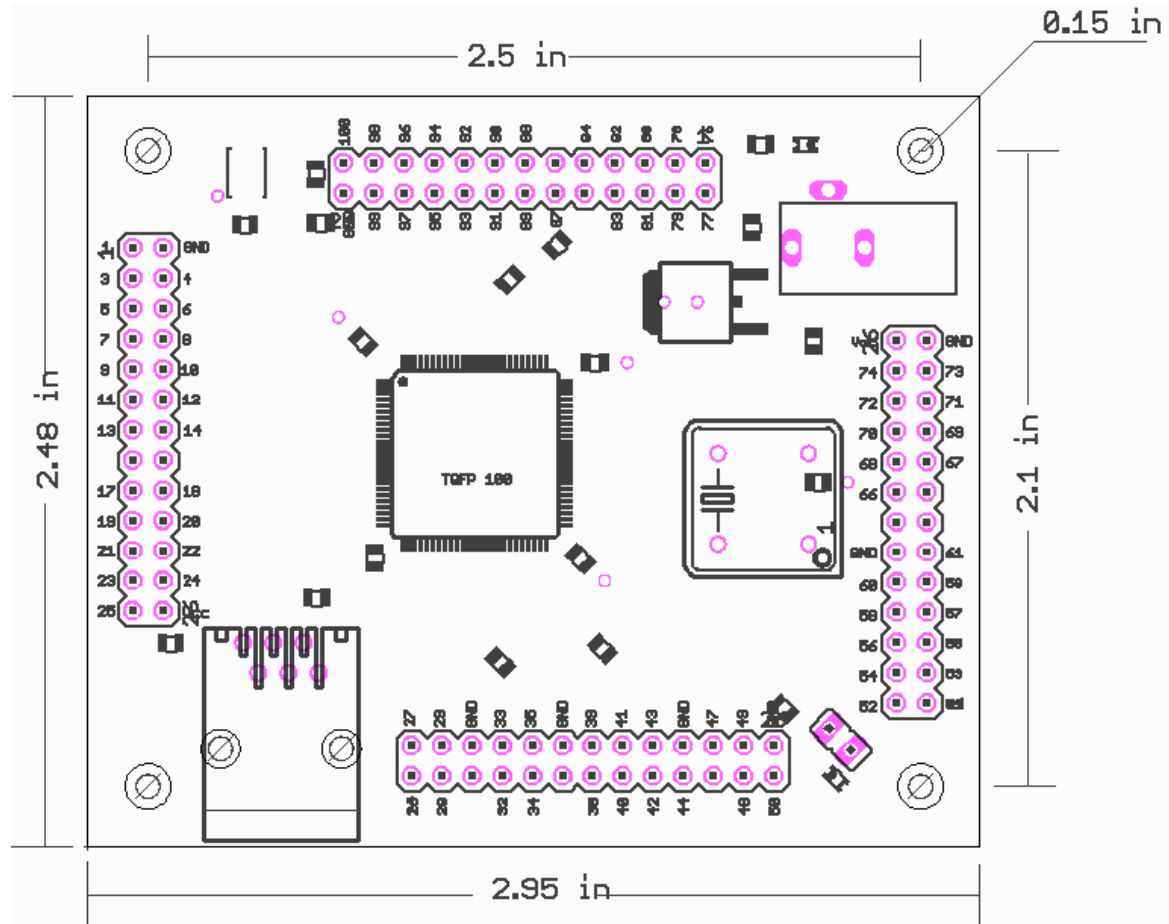
The board employs an RJ-11 socket for programming and debugging with Microchip’s standard development tools.

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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