



Device: DSP-7S04

This document Version: 1.0

Date: 3 March 2011

Description: 4x 7 segment display module

Matches module hardware version: [31 Jan 11 v2]

Table of Contents

Introduction.....	3
Features.....	3
Construction	3
Connections.....	3
Power	3
Usage.....	4
Schematic.....	4
PCB.....	5
Versions	5

Introduction

The DSP-7S04 is a 4 digit seven segment display module powered by two CAT4016 serial LED driver chips.

Features

The DSP-7S04 is a non-multiplexed display; each individual LED segment is lit and addressable. Unlike multiplexed displays that light only one digit at a time, the DSP-7S04 allows all digits to be lit simultaneously resulting in a significantly brighter display.

Construction

It's all built ready to go!

Connections

The DSP-7S04 has one connection ports.

GND	Ground (Vss) connection
CLK	CAT4016 Clock
SIN	CAT4016 Serial In
BLK	CAT4016 Blank
LAT	CAT4016 Latch
VCC	Positive (Vdd) supply

Power

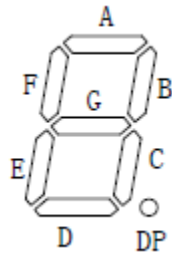
The DSP-7S04 can be powered from 3.3V – 5V. The CAT4016 provides a constant current supply to the LED displays, regardless of input voltage.

Each LED segment uses approximately 20mA, so lighting all segments on all digits requires 640mA. This can be reduced by decreasing the average time the entire display is lit, by using PWM on the BLK pin.

DSP-7S04 HW v2 datasheet – Page 4

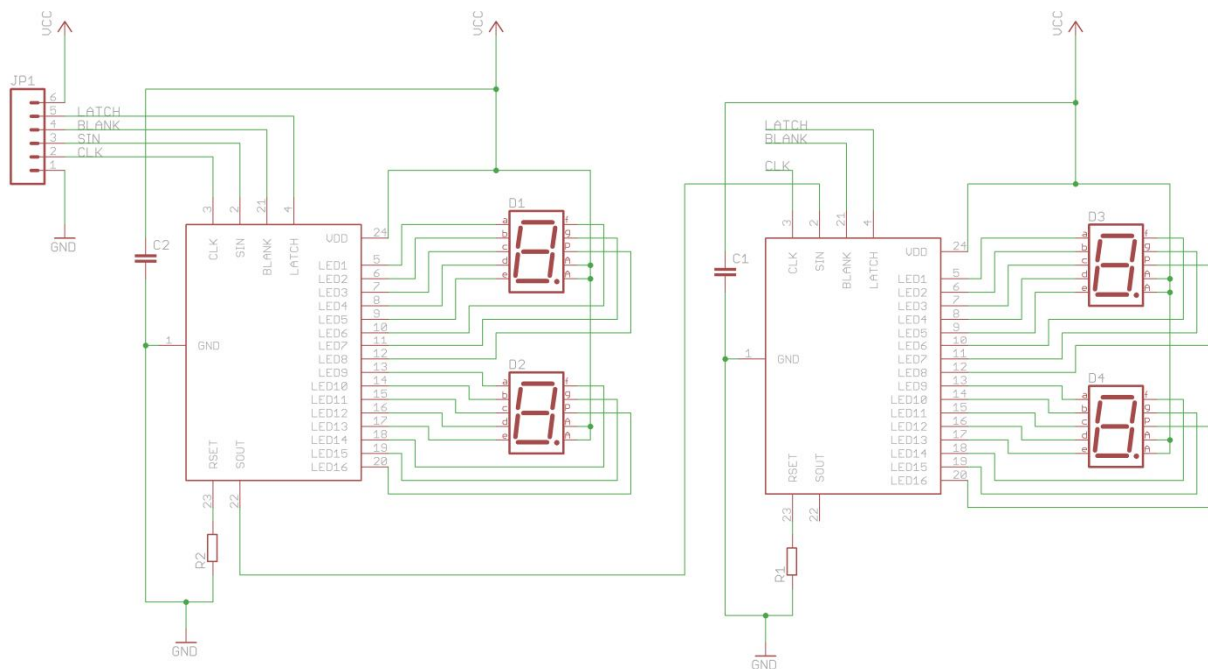
Usage

It's simple! Just power it with 3.3v - 5v, and connect CLK, SIN, BLK and LAT to microcontroller outputs.



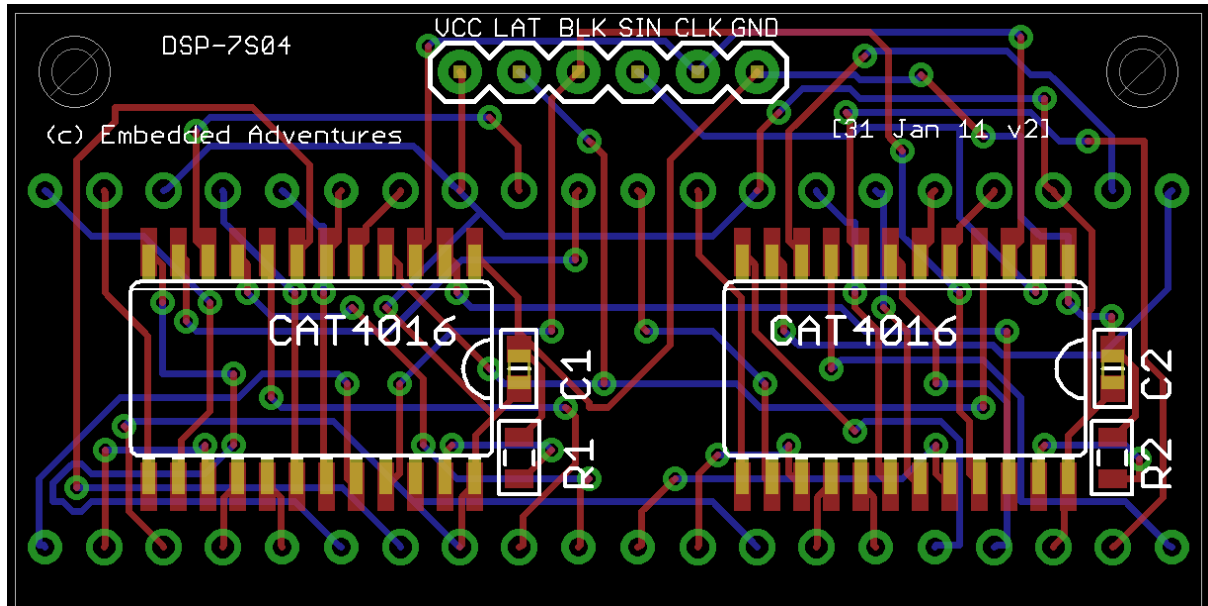
For more details, refer to the CAT4016 datasheet, however, essentially, 32 bits are shifted in on SIN, with CLK pulsed each bit, then LAT is pulsed to latch the data onto the displays. Each 8 bits shifted in light the digits A-G, DP. The rightmost digit is shifted in first.

Schematic



The DSP-7S04 module uses two CAT4016 chips to control 4 seven segment displays. The current setting resistor is chosen to supply approximately 20mA to each segment.

PCB



Versions

Version	Date	Comments
Version 1.0	3 March 2011	Initial Version for board [31 Jan 11 v2]