TEXAS INSTRUMENTS THE WORLD LEADER IN DSP AND ANALOG

C2000 *Teaching Materials*

Route Map for C2000 CD

1. Contents

The CD contains 10 tutorials, which show how to use assembly language with the TMS320C2000 family. Each tutorial has its own questions and answers.

Also contained are some applications, which have been written in C for the TMS320LF2407 DSK.

Some simple add-on circuits are also included, which show how to interface to an audio signal, to produce pulse width modulation (PWM) outputs and to control DC and stepper motors.

The term TMS320F24x means that the examples given do not apply to TMS320LF2407, which uses a slightly different architecture.

Please Click on Selected Item to View

Each application has the program code to run on the DSP. These can be found in the file named “applications” under the file named “code”. Another window should be opened if you wish to compare the applications and the codes.

11.	Template	A basic project for the TMS320LF2407 DSK. Configures an analog-to-digital converter and generates a pulse width modulation (PWM) output. *D:\C2000 Teaching Materials\Applications\Code\Template*
12.	Application 1	Sine wave generation using C code for the TMS320LF2407 DSK. Uses table look-up method. *D:\C2000 Teaching Materials\Applications\Code\Sine*
13.	Application 2	Finite Impulse Response (FIR) filter using C code for the TMS320LF2407 DSK . Provides high pass, low pass and comb filters. Also contains an assembly language version of a low-pass filter, which interfaces to C code. *D:\C2000 Teaching Materials\Applications\Code\FIR*
14.	Application 3	Infinite Impulse Response (IIR) filter. Uses C code. For TMS320LF2407 DSK. *D:\C2000 Teaching Materials\Applications\Code\IIR*
15.	Application 4	Fast Fourier Transform (FFT) using C code. Uses interrupts to control the calling of the FFT. Used with TMS320LF2407 DSK and produces PWM outputs. *D:\C2000 Teaching Materials\Applications\Code\FFT*
16.	Application 5	Stepper Motor driver using the L293D motor driver chip with the TMS320LF2407 DSK. Bi-directional control using an external potentiometer using C code. *D:\C2000 Teaching Materials\Applications\Code\Stepper*
17.	Application 6	DC Motor control using PWM with the TMS320LF2407 DSK using C code. Measurement of supply voltage and current to calculate power taken. *D:\C2000 Teaching Materials\Applications\Code\DCMotor*
18.	Reference Documents	TMS320F/C240 DSP Controllers. Peripheral Library & Specific Devices.
		TMS320F243/F241 DSP Controllers.
		TMs320F/C24x DSP Controllers. CPU and Instruction Set.
		TMS320LF2407/F2406/F2402 DSP Controllers.
		L293D Quadruple Half – H Driver.
		OPA2337 CMOS Operational Amplifiers.
		SLAA116 App on – PWM.
19.	Author profile	A profile of the author of the contents of this CD.

Schematics can be found at the end of marked applications

Schematic 1	Simple add-on circuit to generate output waveforms for the TMS320F243 DSK or the TMS320LF2407 DSK.	Application 1
Schematic 2	Audio interface add-on for the TMS320F243 DSK or the TMS320LF2407 DSK.	Application 2 Application 3 Application 4
Schematic 3	Motor control add-on for the TMS320F243 DSK or the TMS320LF2407 DSK.	Application 5 Application 6

Please use these next two sections (2 & 3) as a reference to help find your way around the CD ROM.

2. Selection by Application

2.1 Sinewave Generation D:\C2000 Teaching Materials\Applications\Code\Sine
Application 1
Schematic 1
SLAA116

2.2 FIR Filter D:\C2000 Teaching Materials\Applications\Code\FIR
Tutorial 10.
Application 2
Schematic 2

2.3 IIR Filter D:\C2000 Teaching Materials\Applications\Code\IRR
Application 3
Schematic 2

2.4 FFT D:\C2000 Teaching Materials\Applications\Code\FFT
Application 4
Schematic 2

2.5 Stepper Motor D:\C2000 Teaching Materials\Applications\Code\Stepper
Application 5
Schematic 3

2.6 DC Motor D:\C2000TeachingMaterials\Applications\Code\DCMotor
Application 6
Schematic 3

3. How To Use...

Analog to Digital converter (TMS320F243)	Tutorial 6
Analog to Digital converter (TMS320LF2407)	Application 5 + Application 6
DC Motor control	Application 6 + Schematic 3
Direct Addressing	Tutorial 4
FIR using C	Application 2
FIR using assembly language	Tutorial 10 and Application 2
FFT	Application 4
IIR filter	Application 3
Indirect Addressing	Tutorial 7
Input / Output ports	Tutorial 5
Interrupts on TMS320LF2407	Application 4
Logical AND and OR	Tutorial 5
Multiplication (assembly language)	Tutorial 8
Multiplication with accumulation (assembly language)	Tutorial 10
Set-up the General Purpose Timers	Tutorial 9

Stepper Motor Control
Template for TMS320LF2407
Time delays

Application 5 + Schematic 3
Template
Tutorial 3

4. Resource Library

Word documents of the tutorials, tutorial answers, and applications can be used for 'cut and paste' purposes. These can be found in the directory:

D:\C2000 Teaching Materials\Resource Library\Word Documents Sources

5. Adobe Acrobat Reader

When Acrobat Reader is run from the CD, rather than from a copy installed on a local hard disk, Acrobat Reader's support files are not installed on the local hard disk. Therefore, some features may be missing or will not work. The full Adobe Reader V4.05 is contained on this CD-ROM, and it can be installed onto the local hard disk.

D:\C2000 Teaching Materials\Adobe Acrobat Reader\Adobe Reader.exe

To View Guide To CD Click Here

Any future revisions to this CD-ROM will be posted on the DSP University Educators Information Exchange. These revisions can be downloaded from this web address:

http://www.ti.com/sc/docs/general/dsp/programs/shareware/index.htm