

Blackfin Workshop Agenda

1. day

Module 1 Blackfin Introduction and Overview

Architecture Basics
(CPU, On-chip Peripherals)

Module 2 Development Tools

Software Development
(Visual DSP, Assembler, Linker,
Debugger)

Visual DSP Linker Description File

Visual DSP Assembler
(Directives, Constants, Symbols)

Visual DSP Linker

Visual DSP Debugger

EZ-KIT Lite

Lab1:
Edit/Assemble/Link/Debug
Walkthrough with simple prewritten
program

Module 3 Data Moves and Addressing (Function and programming)

Data Address Generators
(Registers, Circular Buffers, Bit-
Reversing)

Ports

Lab2:
Write a small program that moves data
from one memory range to another.
Function is checked by means of
Debugger.

2. day

Module 4 Computational Units

(Function and programming)

ALU
(Arithmetic Logic Unit)

Lab3:
Write a program that adds a number of operands. Function is checked by means of Debugger.

MAC
(Multiplier Accumulator)

Lab4:
Write a program that multiplies and adds a number of signed, fractional operands. Function is checked by means of Debugger.

Shift

Lab5:
Implement a double precision shift of a word consisting of two operands a number of bits to the left. Function is checked by means of Debugger.

Module 5 Program Control
(Function and programming)

Sequencer
(Program Counter and Stack, Loop Counter and Stack, Address Comparator and Stack, Loops, subroutines)

Interrupt Controller
(Configuration, Mask Register)

Status Registers

Conditions

Lab6:
Modify the program from Lab3 so that the computation is repeated each time an interrupt occurs. The functionality is checked by means of the Debugger.

Module 6 Advanced Instructions

Autobuffering
Module 13 Serial Ports
Receive & Transmit Configurations
Multichannel operation

Module 14 SPI-Compatible Port
Function
Modes

4. day Module 15 UART Port
Function
Baud rates

Module 16 Timers
Internal Clock Mode
Width & Auto-Baud Mode
External Clock Mode
Core Timer
Watchdog Timer

Module 17 Real Time Clock
Function
Programming

Module 18 Flags
Function
Programming

Module 19 PCI Bridge
Overview

Features

Module 20 USB Device

Overview

Features

Module 21 C RUNTIME MODEL

C programming Advantages
(Maintainability, Portability,
Learning Curve)

C Programming Tradeoffs
(Code Efficiency, Interrupt Handling)

Programming C and Mixed C and Assembler

C Runtime Environment
(Runtime Header, Linker Description
File, Runtime Stack Set-up)

Module 22 Booting

Non-Boot, Boot Modes

Boot Sources