1.12 Computer Models of Physical and Engineering Systems **Spring 1997**

Athena Compilers
Based on 1.00 Athena Compilers

Overview

An integral component of course 1.12 is the extensive use of the Athena computing facilities. You will most likely have used one of the public Athena clusters available on the MIT campus during the last term. To find out about the athena clusters, simply type *xcluster* at the athena prompt. A large window will appear containing a map of the campus with each of the clusters marked with an *X*. By clicking the screen cursor on an *X* or on one the buttons containing building names, information about the type and number of workstations in a specific cluster will appear. You should be aware that there are several computer architectures available on the campus. The three primary architectures in use are:

1. DEC stations
2. SUN stations
3. IBM RS6000s

The name of each type of machine (DEC, SUN, or IBM) is written on the front face of the computer casing.

Due to differences between the machines' architectures, each must use a compiler written specifically for it. Ideally the use of any C++ compiler should be transparent across machines. Unfortunately the behavior of C++ compilers still varies depending on the architecture and the vendor software support. However, independent software organizations have produced compilers that behave similarly on different architectures. These compilers are available in special lockers on the system. They can be used after *add*ing the specified locker to your command path as described in detail later.

Course 1.12 will formally support the *Cygnus* Version of the *GNU C++* compiler *g++*. On athena, this compiler is stored in a locker called *cygnus*.

The remainder of this handout contains details and examples of the compile instructions that you will need to use *g++*. The same compile commands can be used regardless of the machine type.

1. **Adding the locker**

   The first step is to *add* the *cygnus* locker to your machine. The *add* command attaches the specified locker to your workstation and in addition, adds it to your path. To add *cygnus*, just type:

add cygnus
setenv hosttype ${hosttype}

   This must be done every time you login to a workstation.

2. **The most basic compile command**

   To compile a program, your file must have a *.C* extension. After adding *cygnus*, you can use the following command to compile your file.

   $\boxed{\text{make -f filename.mak}}$

   A sample makefile is given. Copy the makefile.mak into your directory and modify it by typing the name of your cc-file where appropriate.

Note :

All students are expected to turn in C++ programs that can be compiled on Athena Workstations (DEC5000, RS6000 or SUNSPARC Classics) using the *Cygnus GNU* C++ compiler *g++*. You may prefer to use personal machines (PC's, MAC's, etc.) to write and compile your code. But before turning it in, please ensure that it compiles and runs correctly with *Cygnus g++* on athena. Points will be taken off if your code does not meet this requirement (even if it works correctly with some other compiler).