SGS-THOMSON MICROELECTRONICS

IMS Dx317

C++ TOOLSET

C++ cross-development systems for IBM PC and Sun 4 hosts

FEATURES

- Conformance with the C++ 3.0 specification
- Support for parallelism via INMOS ANSI C libraries
- Support for all INMOS processors (32 and 16 bit)
- Interactive symbolic debugging for transputer networks
- Post–mortem symbolic debugging for transputer networks
- Support for EPROM programming
- Consistent tools across PC and Sun 4 hosts

APPLICATIONS

- Embedded systems (both single and multiple transputers)
- Porting of existing software and packages
- Evaluation of transputers for concurrent applications
- Scientific programming

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1.1 Product Overview

The INMOS C++ Toolset is derived from ‘C++ Language System’ version 3.0.3 of UNIX System Laboratories Inc.

INMOS has developed its own tools and libraries so that the C++ compiler, used in conjunction with the INMOS ANSI C Toolset, can be used to programme transputer networks.

The INMOS C++ Toolset is available for two development platforms:

IMS D7317 C++ Toolset for IBM PC under MSDOS 5.0

IMS D4317 C++ Toolset for Sun 4 under SunOS 4.1.1 and Solaris 2.x

1.1.1 C++

C++ is a general purpose programming language which has evolved from C. It combines the benefits of object orientated programming with the efficiency of C.

Its benefits include:

- Strong Type Checking

  Help reduce coding problems

- Encapsulation

  Constructing large applications is easier by using C++ classes. A C++ class is a user defined type which may contain data to represent the type, and members function to implement operations on the type.

- Data Abstraction

  Ease maintenance and product evolution by restricting access to a class’s implementation details.

- Multiple Inheritance

  Classes may inherit properties from other classes. This enables classes (and hence effort) to be reused.

- Dynamic Binding

  Use function names consistently, independent of object type, as class members may be bound dynamically at run–time (virtual functions).

- Type-Safe Linkage

  Provides function argument checking across different compilation modules. This enables the correct function to be acquired by a linker when several alternatives are available in the presence of function overloading.

- Parameterized Types (Template)

  Allows users to define a type in terms of another, unspecified type, providing a facility for defining extensive standard libraries.

1.1.2 Use with the INMOS ANSI C toolset

The following capabilities of the INMOS ANSI C toolset can be used from C++:

- Transputer support library
  Functions for creating parallel processes and communicating between them
- Multiprocessor configuration tools
  Building programs to run on networks of transputers.

1.2 INMOS C++ Product Components

1.2.1 Documentation

- Installation guide
- Compiler manual
- Language reference manual
- Library manual
- Single A4 page quick reference guide

1.2.2 Software tools

In normal usage only the C++ driver will be called directly by a user, which calls the other tools as required.

iccxx C++ compilation driver

igcpp C++ preprocessor

icfxx C++ compiler

imxx C++ constructor linker

ifxx C++ debug information filter

Template instantiation set:

- **ptcomp** Instantiation compiler-time action
- **ptlink** Instantiation link-time action
- **tool1, tool2** Template repository tools

1.2.3 Software Libraries

libcxx.lib C++ iostream and C++ run-time support library

libcplx.lib C++ complex math class library

1.3 Product variants

1.3.1 IBM product

Product

- IMS D7317 C++ Toolset

Operating requirements

For PC-hosted cross-development, one of the following will be required:

- IBM PC with a 386 or higher processor and a minimum of 8Mbytes of memory

In each case the following will be required:

- DOS 5.0 or later
- IMS D7394 PC T9000 ANSI C Toolset
  or
- IMS D7314 ANSI C Toolset
- 4Mbytes of free disk space

For interactive transputer symbolic debugging:

- IMS D7390 PC T9000 INQUEST
  or
- IMS D7300 INQUEST

Distribution media

Software is distributed on 1.44 Mbytes 3.5 inch IBM format diskettes.

Licensing

The IMS D7317 is a single-user product. Multiple copies can be purchased for larger project teams using volume discount curves.

No licence fee is charged for including INMOS libraries in customer products when linked with customer applications using the INMOS linker, `ilink`. Example programs and other sources provided may be included in software products, but SGS-THOMSON Microelectronics Limited retain original copyright. Full licensing details are available from SGS-THOMSON Sales Offices, Regional Technology Centers and authorized distributors.

1.3.2 Sun 4 product

Product

- IMS D4317 C++ Toolset

Operating requirements

For Sun-hosted cross-development, one of the following will be required:

- Sun 4 workstation or server
- SunOS 4.1.1 or Solaris 2.2 or later
- IMS D4394 T9000 ANSI C Toolset
  or
- IMS D4314 ANSI C Toolset
- 4 Mbytes of free disk space

For interactive transputer symbolic debugging:

- IMS D4390 PC T9000 INQUEST
  or
- IMS D4300 INQUEST

Licensing

The IMS D4317 C++ Toolset is supplied with either a four-user license or a single-user license. For each four-user product purchased, up to four users are able to use the Toolset concurrently at any one customer site. The tools can be run on any Sun-4 machine that is part of a network connected to a single machine where the licence manager is installed. Further information about the licence manager is included in the product Delivery Manual. Multiple copies can be purchased for larger project teams using volume discount curves.

No licence fee is charged for including INMOS libraries in customer products when linked with customer applications using the INMOS linker, `ilink`. Example programs and other sources provided may be included in software products, but SGS-THOMSON Microelectronics Limited retain original copyright. Full licensing details are available from SGS-THOMSON Sales Offices, Regional Technology Centers and authorized distributors.

1.4 Error Reporting And Field Support

A registration form is provided with each product. Return of the registration form will ensure you are informed about future product updates.

Software problem report forms are included with the software.

INMOS products are supported worldwide through SGS-THOMSON Sales Offices and authorized distributors.

1.5 Ordering information

Description	Order Number
IMS D7317 C++ Toolset for IBM PC	IMS IMS D7317
IMS D4317 C++ Toolset for Sun 4	IMS IMS D4317

Table 1.1 Ordering information