MOTOROLA

Answers to FAQs About C-Ware Software Toolset Version 2.0

C-WARE SOFTWARE TOOLSET, VERSION 2.1

CSTOAFAQ-UG/D
Rev 01

CONTENTS

About This Guide

Guide Overview 1
Using PDF Documents 1
Guide Conventions 3
Revision History 3
Related Product Documentation 4

CHAPTER 1 **Answers to FAQs About C-Ware Software Toolset Version 2.0**

Overview 1
General Questions 1
Tools Questions 2
Services Questions 3
Applications Questions 5

ABOUT THIS GUIDE

Guide Overview

This document presents background information about the C-Ware Software Toolset (CST) Version 2.0 release. This release was important because it introduced a new environment (with tools) for building C-Ware applications.

This document is intended for software developers who create C-Ware-based applications using the CST.

This document also assumes good working knowledge of the C-Ware Software Toolset.

This document contains one chapter that contains the following major topics:

- Overview
- General Questions
- Tools Questions
- Services Questions
- Applications Questions

Using PDF Documents

Electronic documents are provided as PDF files. Open and view them using the Adobe® Acrobat® Reader application, version 3.0 or later. If necessary, download the Acrobat Reader from the Adobe Systems, Inc. web site:

http://www.adobe.com/prodindex/acrobat/readstep.html

PDF files offer several ways for moving among the document's pages, as follows:

- To move quickly from section to section within the document, use the *Acrobat bookmarks* that appear on the left side of the Acrobat Reader window. The bookmarks provide an expandable 'outline' view of the document's contents. To display the document's Acrobat bookmarks, press the 'Display both bookmarks and page' button on the Acrobat Reader tool bar.

- To move to the referenced page of an entry in the document's Contents or Index, click on the entry itself, each of which is "hot linked."
- To follow a cross-reference to a heading, figure, or table, click the blue text.
- To move to the beginning or end of the document, to move page by page within the document, or to navigate among the pages you displayed by clicking on hyperlinks, use the Acrobat Reader navigation buttons shown in this figure:

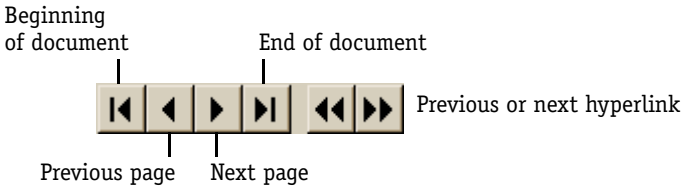

Table 1 summarizes how to navigate within an electronic document.

Table 1 Navigating Within a PDF Document

TO NAVIGATE THIS WAY	CLICK THIS
Move from section to section within the document.	A bookmark on the left side of the Acrobat Reader window
Move to an entry in the document's Contents or Index.	The entry itself
Follow a cross-reference (highlighted in blue text).	The cross-reference text
Move page by page.	The appropriate Acrobat Reader navigation buttons
Move to the beginning or end of the document.	The appropriate Acrobat Reader navigation buttons
Move backward or forward among a series of hyperlinks you have selected.	The appropriate Acrobat Reader navigation buttons

le Conventions

The following visual elements are used throughout this guide, where applicable:

This icon and text designates information of special note.

Warning: *This icon and text indicate a potentially dangerous procedure. Instructions contained in the warnings must be followed.*

Warning: *This icon and text indicate a procedure where the reader must take precautions regarding laser light.*

This icon and text indicate the possibility of electrostatic discharge (ESD) in a procedure that requires the reader to take the proper ESD precautions.

Revision History

Table 2 provides details about changes made for each revision of this guide.

Table 2 *C-Ware Reference Library Guide* Revision History

REVISION DATE	CST REVISION	CDS REVISION	CHANGES
April 12, 2002	2.1	2.0	Corrections throughout to names of members of CST document set. Typographic corrections throughout.
September 11, 2001	2.0	2.0	New document.

Product ntation

Table 3 lists the user and reference documentation for the C-Port silicon, C-Ware Development System, C-Ware Software Toolset, and the C-Ware library of reference applications.

Table 3 C-Port Silicon and CST Documentation Set

DOCUMENT SUBJECT	DOCUMENT NAME	PURPOSE	DOCUMENT ID
Processor Information	*C-5 Network Processor Architecture Guide*	Describes the full architecture of the C-5 network processor.	C5NPD0-AG
	C-5 Network Processor Data Sheet	Describes hardware design specifications for the C-5 network processor.	C5NPD0-DS
	C-5e/C-3e Network Processor Architecture Guide	Describes the full architecture of the C-5e and C-3e network processors.	C53ENPA0AG-REF
	C-5e Network Processor Data Sheet	Describes hardware design specifications for the C-5e network processor.	C5ENPA0-DS
	M-5 Channel Adapter Architecture Guide	Describes the full architecture of the M-5 channel adapter.	M5CAA0AG-REF
	Q-5 Traffic Management Coprocessor Architecture Guide	Describes the full architecture of the Q-5 traffic management coprocessor.	Q5TMCA0AG-REF
Hardware Development Tools	*C-Ware Development System Getting Started Guide*	Describes installation of the CDS.	CDS20GSG-UG
	C-Ware Development System User Guide	Describes operation of the CDS.	CDS20UG-UG
Software Development Tools	*C-Ware Software Toolset Getting Started Guide*	Describes how to quickly become acquainted with the CST's software development tools for a given CST platform.	CSTGSGW-UG (Windows) CSTGSGS-UG (Sun SPARC Solaris)
	C-Ware Application Building Guide	Describes tools to build executable programs for the C-Port network processors or simulators.	CSTABG-UG
	C-Ware Debugger User Guide	Describes the GNU-based tool for debugging software running on either the C-Port network processorsor simulators.	CSTDBGUG-UG
	C-Ware Integrated Performance Analyzer User Guide	Describes use of theIntegrated Performance Analyzer tool for gathering performance metrics of a C-Port NP-based application running under the simulator.	CSTIPAUG-UG
	C-5 Simulator User Guide	Describes how to configure and run a simulation of a C-Port NP-based application using simulator tools.	CSTSIMUG-UG

: 3 C-Port Silicon and CST Documentation Set (continued)

DOCUMENT SUBJECT	DOCUMENT NAME	PURPOSE	DOCUMENT ID
Application Development	*C-Ware Application Design Guide*	Describes design guidelines and trade-offs for implementing new C-Port NP-based communications applications.	CSTAPDG-UG
	C-Ware API User Guide	Describes the subsystems and services that make up the C-Ware Applications Programming Interface (API) for C-Port NP-based communications applications.	CSTAPIUG-UG
	C-Ware Host Application Programming Guide	Describes the CST software infrastructure and APIs that support host based communications applications.	CSTHAPG-UG
	C-Ware Microcode Programming Guide	Describes programming the C-Port network processor's Serial Data Processors and Fabric Processor.	CSTMCPG-UG
Reference Applications and Components	*AAL-2 Switch Application Guide*	Describes the key characteristics of the **aal2Switch** application.	CSTAA2-UG
	AAL-5 Fabric Port SAR to Gigabit Ethernet Switch Application Guide	Describes the key characteristics of the **gbeOc12SarFp** applications.	CSTAA5F2G-UG
	AAL-5 SAR Application Guide	Describes the key characteristics of the **oc3SarQ** application.	CSTAA5-UG
	AAL-5 SAR to Gigabit Ethernet Switch Application Guide	Describes the key characteristics of the **gbeOc12Sar** and **gbeOc12SarQ** applications.	CSTAA52G-UG
	ATM Cell Switch Application Guide	Describes the key characteristics of the **atmCellSwitchQ** application.	CSTAATMCS-UG
	FibreChannel to Gigabit Ethernet IP Gateway Application Guide	Describes the key characteristics of the **gbeFc** application.	CSTAFC2G-UG
	Frame Relay to ATM to 10/100 Ethernet Switch Router Application Guide	Describes the key characteristics of the **switchRouter** application.	CSTAFRAE-UG
	Gigabit Ethernet Switch Application Guide	Describes the key characteristics of the **gbeSwitch** application.	CSTAGBE-UG
	Multi-PHY Switch Application Guide	Describes the key characteristics of the **mphySwitch** application.	CSTAMPHYS-UG
	Packet Over SONET Switch Application Guide	Describes the key characteristics of the **posOc48SwitchQ** application.	CSTAPOS-UG
	Packet Over SONET to Ethernet Switch Application Guide	Describes the key characteristics of the **enetOc12Switch** application.	CSTAPOS2E-UG

C-Port Silicon and CST Documentation Set (continued)

SUBJECT	DOCUMENT NAME	PURPOSE	DOCUMENT ID
Reference Applications and Components, continued	*Packet Over SONET to Gigabit Ethernet Switch Application Guide*	Describes the key characteristics of the **posGbeSwitch** application.	CSTAPOS2G-UG
	Voice Over IP to Voice Over ATM Media Gateway Application Guide	Describes the key characteristics of the **voIpToVoAtmSwitch** application.	CSTAVOIP-UG
	Fabric Processor Configuration Component Guide	Describes the key characteristics of the **fabrics** application component.	CSTCFPC-UG
	GMII Gigabit Ethernet Autonegotiation Component Guide	Describes the key characteristics of the **gmiiAutoNeg** application component.	CSTCGEAN-UG
	ICMP Support Component Guide	Describes the key characteristics of the **ip** application component.	CSTCICMP-UG
	MPC750 SBC Host Stack Support Component Guide	Describes the key characteristics of the **stackSupport** application component.	CSTCMHSS-UG
	PHY Configuration Component Guide	Describes the key characteristics of the **phy** application component.	CSTCPHYC-UG
	QMU Configuration and RC Support Component Guide	Describes the key characteristics of the **queueUtils** application component.	CSTCQRCS-UG
	SONET Monitoring Component Guide	Describes the key characteristics of the **sonet** application component.	CSTCSMC-UG
	TLU Configuration Component Guide	Describes the key characteristics of the **tableUtils** application component.	CSTCTLUC-UG
Other Documents	*Answers to FAQs About C-Ware Software Toolset Version 2.0*	Describes how the directory architecture provided in C-Ware Software Toolset Version 2.0 differs from previous CST releases.	CSTOAFAQ-UG
	Build System Conventions	Describes the key features of the C-Ware Software Toolset's provided environment for building software.	CSTOBSC-UG
	C-Ware Software Toolset Application Guidelines	Describes the criteria for how software components comply with the C-Ware Software Toolset's provided environment for building software.	CSTOCAG-UG

Chapter 1

ANSWERS TO FAQS ABOUT C-WARE SOFTWARE TOOLSET VERSION 2.0

Overview

This document lists some frequently asked questions about using the C-Ware Software Toolset (CST) Version 2.0. While most of the questions apply to any CST release, some are geared towards the differences between CST Version 2.0 and past releases.

The FAQ is split into the following sections that list the questions and answers about the CST:

- General Questions
- Tools Questions
- Services Questions
- Applications Questions

General Questions

Table 1 lists a number of questions and answers about general aspects of the CST.

Table 1 Q & A About General Aspects of the C-Ware Software Toolset

QUESTION	ANSWER
What platforms does the CST support?	The CST runs on Windows NT, Windows 2000, and Sun SPARC Solaris UNIX platforms.
What are the major components of the CST?	The CST consists of three components: Tools, Services and Applications.
What documentation is available with the CST?	The CST contains several documents which describe it's features that reside in the "Documentation" folder. In addition to the documents there, each of the applications in the CST have their own **README** file and Functional and Design guide.

uestions

Table 2 lists a number of questions about the *Tools* section of the CST.

Table 2 Q & A About C-Ware Software Toolset Tools

QUESTION	ANSWER
What does the "Tools" component of the CST consist of?	The Tools component of the CST consists of a set of development tools that are available for application development and modeling for C-Port's family of Network Processors (NP). The set of tools consists of: • Software simulator for the C-5 NP. • Software simulator for the C-5e NP and C-3e NP. This simulator includes support for system configurations that use a Q-5 Traffic Management Coprocessor and the M-5 Channel Adapter. • A "clock synchronizer" utility that allows system simulation support for using more than one software simulator on a machine or over a TCP/IP network. • GNU "gcc" cross compiler for generating code for the C-5 NP's XPRC or CPRC. This is a NT/UNIX to MIPS cross-compiler that supports a MIPS-I like instruction set. • GNU "gcc" NT/UNIX "native" compiler for generating programs for Windows™ and UNIX systems. • C-Ware microcode compiler for the C-5 NP's Serial Data Processors and Fabric Processor. • GNU "gdb"debugger. • A set of Perl "pattern generation" scripts. • A set of Perl "post processing" scripts. • A Performance Analyzer.

Table 2 Q & A About C-Ware Software Toolset Tools (continued)

QUESTION	ANSWER
What documentation is available for the CST Tools?	The CST Tools offers documentation for the following topics: • *C-Ware Application Building Guide* • *C-Ware Software Toolset Getting Started Guide* (Windows or Sun SPARC Solaris editions) • *C-Ware Debugger Guide* • *C-5 Simulator User Guide* • *C-Ware Integrated Performance Analyzer User Guide* • *C-Ware Microcode Programming Guide* Note that all CST documentation is in Adobe PDF format and the above documents are located in the CST's "Documentation" folder at the top level of the CST.
Can multiple simulators be accommodated by the CST's Tools?	Yes, multiple software simulators can be modeled either on the same machine or over a network to work with one and another using TCP/IP sockets for the I/O interfaces (PCI, TLU, FP, CP). For information on this topic, see the *C-5 Simulator User Guide*.

Services Questions

Table 3 lists a number of questions about the *Services* section of the CST.

Table 3 Q & A About C-Ware Software Toolset Services

QUESTION	ANSWER
What does the "services" component of the CST consist of?	The services component of the CST consists of the following: • CPI for C-5 programming (both on-chip and off-chip support). • "Host" API for management of C-5 from host processor. • VxWorks™ driver for C-5.
What documentation is available for the services component?	The CST's services offers the following documentation: • *C-Ware API User Guide* • *C-Ware Host Application Programming Guide* Note that all CST documentation is in Adobe PDF format and the above documents are located in the CST's "Documentation" folder at the top level of the CST.

Table 3 Q & A About C-Ware Software Toolset Services (continued)

QUESTION	ANSWER
Does the C-5 device driver support multiple devices?	Yes - the C-5 driver supports multiple instantiations of the C-5 NP (up to 4) in a single development system. For more information on this topic, see the *C-Ware Host Application Programming Guide*.
Does the C-5 device driver support different RTOS's besides VxWorks?	No, the driver currently only supports the VxWorks RTOS. However, the driver is designed in such as way to easily port to different operating systems. The operating system services that it uses are common to all operating systems and it is straightforward how to port to a different RTOS. For more information on this topic, see the *C-Ware Host Application Programming Guide*.

lications Questions

Table 4 lists a number of questions about the *Applications* section of the CST.

Table 4 Q & A About the Applications Section of the C-Ware Software Toolset

QUESTION	ANSWER
What does the "applications" component of the CST consist of?	The applications section of the CST contains: • A number of LAN, WAN and wireless applications that run on the C-5 NP. • A number of common application "components" that contain common functions that all applications can use. • An example application that has to run on the C-5 NP when using the C-5 Device Driver's sample **dmaRx** and **dmaTx** test applications.
What documentation exists for the applications component of the CST?	The CST's applications component offers the following documentation: • *C-Ware Application Design Guide* Each application or application component also contains: • README file (in ASCII) • Functional and Design document Note that all CST documentation is in Adobe PDF format and the above documents are located in the CST's "Documentation" folder at the top level of the CST.
Do all the applications that the CST provides run on the hardware development system (CDS)?	All applications that support the C-5 NP Version D0 run on the CDS. Applications that don't support the C-5 NP(that support the C-5e NP only, for example), only run in software simulation.
Do applications that are provided in the CST only run on one particular chip?	Any applications that support the C-5 NP also support the C-5e NP, but not vice-versa. Virtually all the source code used for an application that runs on both parts is the same and is abstracted from the user in the case of differences required between chips. For more information on this topic, see the *Build System Conventions* document.