OMEGA 3000 and CDS Setup

User Guide

IADS Version 8.0 February 2012

SYMVIONICS Document SSD-IADS-039

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1. Introduction

SYMVIONICS Telemetry Systems provides a stand-alone program, called the Omega IOM (Omega 3000 IADS Output Module) that is a data server that provides both parameter information and data for real-time operation of the IADS System.

This program is contained on the IADS-TELEM-BASE installation package as a separate installable item. The Omega IOM program must be installed on the same computer as the Wyle Omega Manager software.

2. Omega 3000 Server and Caching Data Server (CDS) Setup

2.1. CDS Standalone Setup

Setup entries in the CDS.ComputeDataServer.iadsStartupFile file on the CDS machine under C:\Program Files\IADS\ComputeDataServer:

CDS Property Name	*Property Setting*
DATALOCATION	host 7001
DATA_SOURCE_TYPE	Omega
DATA_SOURCE_PROGID	IadsOmegaDataSource.IadsOmegaDataSource.1
PARAMETER_CONTROL_LOCATION	host 7002*

* The host is the location of the Wyle Omega 3000. The portId 7002 is currently hard-code within the IADS system.

2.2. Operator Console Setup

This table shows the entry for setup when using the Ops Console. Edit the CDS section in the "opconsole.iadsStartupFile" file on the Ops Console machine under C:\Program Files\IADS\OpConsole:

CDS Property Name	*Property Setting*
DATALOCATION	host 7001
DATA_SOURCE_TYPE	Omega
DATA_SOURCE_PROGID	IadsOmegaDataSource.IadsOmegaDataSource.1
PARAMETER_CONTROL_LOCATION	host 7002*

* Where host is the name of the Omega Server machine. 7002 is currently preset by the CDS internally and cannot be changed

Add/edit the following environment variables (if appropriate) on the Omega Server machine:

Variable = VSYS_MEMARC_USER_n_SIZEValue = 1048576

Where n corresponds to the MemArc Queue Slot entry in the Omega IOM user interface. The slots range from 1 to 6. The MemArc entry (VSYS_MEMARC_USER_n_SIZE) can be verified via an entry in the Omega Environment Editor under the General tab (i.e. Parameter Queue Size entry or User App #n entries) within the Omega Manager program. Another requirement is to make sure that the Number of Buffers entry under the Decom tab in the Omega Environment Editor is set to "auto". Note the exact wording and location of these entries within the Environment Editor vary with different versions of the Omega Manager software and typically need no modification from the default settings in the more current versions. An alternative method is to place these variables in either the System or User variable list (User will override System). This alternative method typically only applies to older versions of the Omega Manager software.

2.3. System Parameter Setup

Determine and setup Time and Decom status parameters for each project to be used with IADS. The resultant three parameters will need to be resident in the Major Time, Minor Time and Decom Status text box entries on the Omega IOM graphical user interface.

Each PCM stream contains Time and Decom status parameters with the following naming conventions. These parameters are auto generated in the USERDEF stream when creating a project:

System Parameter	*Required IADS Name*	*Description*
Low (minor) time	__TIME_L_n_Cm_	where n = decom card number and m = channel number
High (major) time	__TIME_H_n_Cm_	where n = decom card number and m = channel number
Decom status	__DECOM_n_Cm_	where n = decom card number and m = channel number

Time Parameter Setup:

Directly use the parameters __TIME_H_n_Cm_, __TIME_L_n_Cm_ for high and low time respectively.

IMPORTANT NOTES: n and m should represent the card number and channel respectively of the stream with the highest minor frame rate. The above parameters must be included in the parameter list designated for IADS as specified in the "Select List" entry on the Omega IOM user interface.

Decom Status Parameter Setup:

Create a new parameter in the DERIVED stream for time status. This parameter will return the value of the appropriate USERDEF parameter and be triggered by low time of the same stream used for the IADS time parameters. For example: DERIVED parameter providing time status for IADS:

Item	*Setup*
Parameter name	STAT4IADS
Trigger	__TIME_L_n_Cm_
Derived expression	DP=R(__DECOM_n_Cm_);

IMPORTANT NOTES: n and m should represent the same card number and channel used for the IADS time parameters. The above parameter must be included in the parameter list designated for IADS as specified in the "Select List" entry on the Omega IOM user interface.

2.4. Miscellaneous Requirements

These setup instructions require Omega-NT Manager v3.4 P5 or later. Earlier versions require some minor differences in the setup. Please contact an IADS representative for those instructions if applicable. IADS will not support versions of the Omega-NT Manager earlier than v2.1a P17.

All Decom status parameters specified in the USERDEF stream must be included in the parameter list targeted for IADS. The naming convention for these parameters are __DECOM_n_Cm_ where n = decom card number and m = channel number.

3. The Omega 3000 IADS Output Module (IOM)

The Omega IOM is a conduit for parameter information and data flow for the CDS. The Omega IOM creates an interface to the Omega Parameter Database and propagates information down to the CDS. The Omega IOM initiates and reads the Omega MemArc Queue and forwards the data to the CDS. Start-up and dynamic status information is viewable during operation. This application is a Microsoft COM-based server that needs to be run on the same system as the Omega Manager.

3.1. System Parameter Setup

Parameter Setup:

Setup three parameters that return the value of the major (high) time, the minor (low) time, and the decom status of the stream with the highest minor frame rate. The creation and/or determination of these parameters are described in section 2.3.

Decom Status Parameter:

The Decom status parameters for all PCM streams must be included in the parameter list targeted for IADS. These are USERDEF parameters with the naming convention __DECOM_n_Cm_ where *n* is the decom card number and *m* is the channel.

3.2. Launching the Omega IOM

The Omega IOM must be launched after an Omega project has been loaded and prior to launching the CDS. If the CDS is launched prior to launching the Omega IOM, an Omega IOM process may still be launched and will not necessarily display a dialog box or may contain incorrect information (i.e. parameter list, time parameters, status parameter) on the user interface. In this case, the Omega IOM process (listed as VeridianIOM.exe in Task Manager Process list) will need to be killed prior to re-launching the system in the proper sequence.

To Open the Application:

- Click the **Omega IOM** icon on the desktop.

To Set-up the Environment:

Select the parameter list you want active for IADS in the Select List drop-down menu. Verify that the time and time status parameter names are correctly represented in the Major Time, Minor Time and Decom Status boxes. Select the proper MemArc Queue in the MemArc Queue Slot box.

4. The Omega 3000 IOM Dialog

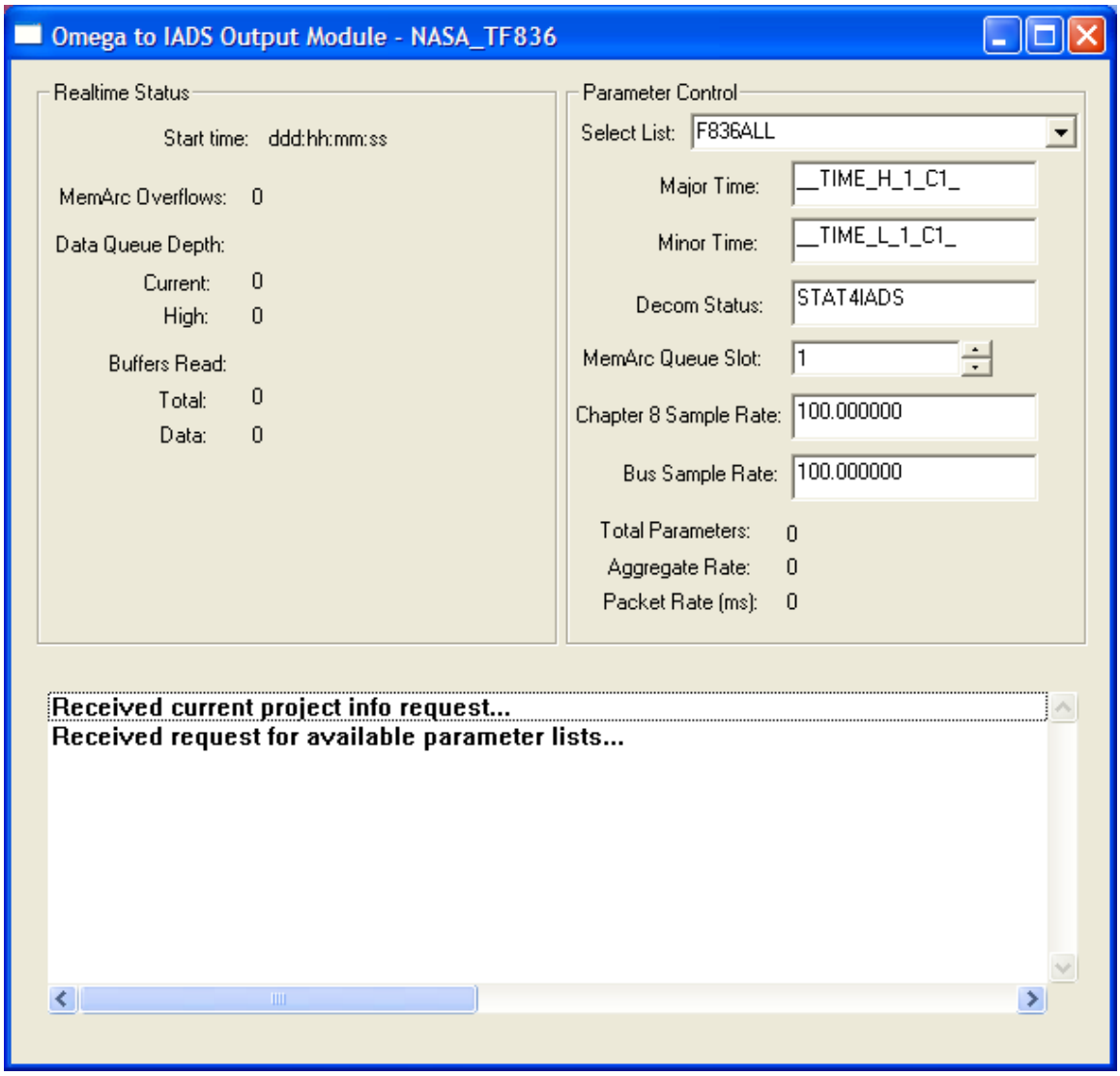

Figure 4-1 Omega 3000 IOM Dialog

4.1. Omega 3000 IOM Dialog Descriptions

Start Time - Not currently implemented

MemArc Overflows - Shows how many times the MemArc Queue overflow condition was sensed

Data Queue Depth - Shows the current number of data packets queued up in the Omega IOM to be sent to the CDS. This is updated every 100 MemArc Queue reads

Buffers Read:

***Total* -** Displays the total number of times the MemArc Queue was read.

***Data* -** Displays the total number of times the MemArc Queue read contained data.

Select List - This list defines the parameter lists available for the current project. The CDS will use the visible list as the active parameter list to define the data set that will be delivered to the CDS.

Major Time - This Text box defines the parameter to be used by the CDS for high time. This must be a parameter in the active parameter list from the USERDEF stream that receives data from the high time parameter of the stream with the highest minor frame rate.

Minor Time - This Text box defines the parameter to be used by the CDS for low time. This must be a parameter in the active parameter list from the USERDEF stream that receives data from the low time parameter of the stream with the highest minor frame rate.

Decom Status - This Text box defines the parameter to be used by the CDS for decom status. This must be a parameter in the active parameter list from the DERIVED stream that receives data from the decom status parameter of the stream with the highest minor frame rate. This parameter must be triggered from the low time parameter of the same stream.

MemArc Queue Slot - The visible entry defines the MemArc Queue to be used for data flow from the Omega IOM. Available slots: 1-6.

Chapter 8 Sample Rate - The Text box defines the sample rate to be applied to Chapter 8 parameters.

Bus Sample Rate - The Text box defines the sample rate to be applied to 1553/ARINC-429 parameters.

Total Parameters - This represents the total number of parameters in the active parameter list. This entry updates upon connection from the CDS.

Aggregate Rate - This represents the total sample rate aggregate of the active parameter list.

Packet Rate - This represents the rate in milliseconds at which the MemArc Queue will be read.

Server Messages - Displays current actions and requests made to the Omega IOM and outputs periodic status messages during data flow.