SEMI E122.1-0703 (Reapproved 1109)
SPECIFICATION FOR SECS-II PROTOCOL FOR TESTER SPECIFIC EQUIPMENT MODEL (TSEM)

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1 Purpose

1.1 This Standard maps the services and data of SEMI E122 to SECS-II streams and functions, and data definitions.

2 Scope

2.1 This Specification covers equipment supporting automated control job management.

2.2 This Standard applies to all implementations of SEMI E122 that use the SECS-II message protocol (SEMI E5). Compliance to this Standard requires compliance to both SEMI E122 and SEMI E5.

NOTICE: SEMI Standards and Safety Guidelines do not purport to address all safety issues associated with their use. It is the responsibility of the users of the Documents to establish appropriate safety and health practices, and determine the applicability of regulatory or other limitations prior to use.

3 Limitations

3.1 This Specification applies to semiconductor equipment that also use SEMI E30 GEM Standard.

4 Referenced Standards and Documents

4.1 *SEMI Standards and Safety Guidelines*

SEMI E5 — SEMI Equipment Communications Standard 2 Message Content (SECS-II)

SEMI E30 — Generic Model for Communications and Control of Manufacturing Equipment (GEM)

SEMI E122 — Specification for Tester Equipment Specific Equipment Model (TSEM)

NOTICE: Unless otherwise indicated, all documents cited shall be the latest published versions.

5 Services Message Mapping

5.1 This section shows the specific SECS-II streams and functions that shall be used for SECS-II implementation of the services defined in SEMI E122, as well as the parameter mapping for data attached to services.

5.2 *Services Message Mapping*

5.2.1 Table 1 defines the relationships between SEMI E122 services and SECS-II messages. Mapping of service parameters to the SECS-II data items is provided in a separate table. Conventions and definitions of table fields are as described below.

5.2.2 *Service Name* — Name of the service or remote command defined in SEMI E122.

5.2.3 *Stream, Function* — Specifies the SECS-II stream and function (SxFx) mapped to the service messages. Following convention of SECS-II, request and notification messages are mapped to the odd-numbered functions and response or acknowledgement messages are mapped to the corresponding even-numbered functions.

5.2.4 *SECS-II Message Name* — Name of the SECS-II message.

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Table 1 Services Message Mapping Table

Service Name	*Stream, Function*	*SECS-II Message Name*
ABORT	S2F41/F42	Host Command Send/Acknowledge
DEFINE-DATALOG-PLAN	S2F49/F50	Enhanced Remote Command Send/Acknowledge
DISABLE-SITE	S2F49/F50	Enhanced Remote Command Send/Acknowledge
ENABLE-SITE	S2F49/F50	Enhanced Remote Command Send/Acknowledge
PAUSE	S2F41/F42	Host Command Send/Acknowledge
PP-SELECT	S2F49/F50	Enhanced Remote Command Send/Acknowledge
RESET-SITE-CNT	S2F41/F42	Host Command Send/Acknowledge
RESUME	S2F41/F42	Host Command Send/Acknowledge
START	S2F49/F50	Enhanced Remote Command Send/Acknowledge
START-EXEC	S2F41/F42	Host Command Send/Acknowledge
STOP	S2F41/F42	Host Command Send/Acknowledge
STOP-EXEC	S2F41/F42	Host Command Send/Acknowledge

5.3 *Data Collection Service Mapping*

5.3.1 Table 2 defines the relationships between SEMI E122 online test data collection services and SECS-II messages. These services map to a subset of the SECS-II stream 13 functions, further usage and formatting details are as defined in stream 13 section of SEMI E5.

Table 2 Data Collection Service Message Mapping Table

Service Name	*Stream, Function*	*SECS-II Message Name*
SEND	S13F1/F2	Send Data Set Send/Acknowledge
OPEN	S13F3/F4	Open Data Set Request/Acknowledge
READ	S13F5/F6	Read Data Set Request/Acknowledge
CLOSE	S13F7/F8	Close Data Set Send/Acknowledge
RESET	S13F9/F10	Reset Data Set Send/Acknowledge

5.4 *Event Message Mapping*

5.4.1 Table 3 defines the relationships between SEMI E122 collection events and SECS-II messages. Conventions and table field definitions similar to mapping table for the services, here Event Name specifies the event defined in SEMI E122.

5.4.2 Format and structure are as defined in SEMI E30 (GEM), including attached reports.

Table 3 Event Message Mapping Table

Event	*Stream, Function*	*SECS-II Message Name*
All state model transitions and all events defined in SEMI E122.	S6F11/12	Event Report Send/Acknowledge

5.5 *Service Parameter Mapping*

5.5.1 Table 4 defines the relationships between SEMI E122 service parameters and SECS-II data definitions or parameter fields in the mapped streams and functions. Parameters for acknowledgements or responses will follow SECS-II Specification for that stream and function, no service specific error codes are defined in this Specification. Descriptions of each table column are described below.

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5.5.2 *Service* — Specifies the service whose parameters are described.

5.5.3 *SECS-II Field* — Specifies the SECS-II data item or message parameter used by the service. In this Specification, the DATAID and OBJSPEC fields are unspecified for services using the S2F49 SECS-II message. Their values are to be ignored or used for implementation specific purposes.

5.5.4 *Values* — Value or SECS II format for the specified field. Formats are specified using the SML notation as defined in appendices of SEMI E30 (GEM).

5.5.5 *Req.* — Indicates whether the specified field or parameter is required or not. If an optional CPNAME parameter is used, the corresponding CPVAL must also be given.

Table 4 Service Parameter to SECS-II Data Items Mapping

Service	*SECS-II Field*	*Values*	*Req.*	*Description*
ABORT	RCMD	'ABORT'	Y	
DEFINE-DATALOG-PLAN	RCMD	'DEFINE-DATALOG-PLAN'	Y	
	$CPNAME_1$	'DATALOGPLANNAME'	Y	DATALOGPLANNAME parameter.
	$CPVAL_1$	A[80]	Y	Name of datalog plan.
	$CPNAME_2$	'DATALOGDATASETS'	N	DATALOGDATASETS parameter.
	$CPVAL_2$	L,n (n - # of datasets) 1. L,2 1. A[80] 2. L, p 1. U4 … p. U4 n. L,2 1. A[80] 2. L,q 1. U4 … q. U4	N	Datalog output can be directed to separate datasets on a per-test-site basis. L,n (n - # of datasets) 1. L,2 1. Dataset $Name_1$ 2. L,p (Zero-length list = all test-sites) 1. $SiteID_{11}$ … p. $SiteID_{1p}$ n. L,2 1. Dataset $Name_n$ 2. L,q (Zero-length list = all test-sites) 1. $SiteID_{n1}$ … q. $SiteID_{nq}$
	$CPNAME_3$	'DATALOGBYTESTTYPE'	N	DATALOGBYTESTTYPE parameter.
	$CPVAL_3$	L,b 1. L,3 1. U4 2. U4 3. U4 … b. L,3 1. U4 2. U4 3. U4	N	Specifies datalog options by general TestType. L,b (b = # of (TestType, TestStatus) pairs being assigned reports.) 1. L,3 1. $TestType_1$ 2. $TestStatus_1$ 3. $ReportID_1$ (If omitted, the default report is assigned.) … b. L,3 1. $TestType_b$ 2. $TestStatus_b$ 3. $ReportID_b$
	$CPNAME_4$	'DATALOGBYTESTID'	N	

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Service	*SECS-II Field*	*Values*	*Req.*	*Description*
	CPVAL$_4$	L,c 1. L,3 1. U4 2. U4 3. U4 … c. L,3 1. U4 2. U4 3. U4	N	Specifies datalog options for specific test ids. L,c (c = # of (TestId, TestStatus) pairs being assigned reports.) 1. L, 3 1. TestID$_1$ 2. TestStatus$_1$ 3. ReportID$_1$ … c. L,3 1. TestID$_c$ 2. TestStatus$_c$ 3. ReportID$_c$
	CPNAME$_5$	'DATALOGOPTION'	N	DATALOGOPTION parameter.
	CPVAL$_5$	U4	N	Turns datalog on/off. (0:No Log, 1:Log Pass, 2:Log Failures, 3: Log All)
DISABLE-SITE	RCMD	'DISABLE-SITE'	Y	
	CPNAME$_1$	'DISABLESITELIST'	Y	DISABLESITELIST parameter.
	CPVAL$_1$	L,n (n = # of sites selected) 1. U4 2. U4 : n. U4	Y	Sites value. List of test sites to disable. Zero-length list indicates all sites. L,n (n = number of sites selected.) 1. ID of 1st site 2. ID of 2nd site … n. ID of nth site
ENABLE-SITE	RMCD	'ENABLE-SITE'	Y	
	CPNAME$_1$	'ENABLESITELIST'	Y	ENABLESITELIST parameter.
	CPVAL$_1$	L,n 1. U4 2. U4 : n. U4	Y	Sites value. List of sites to enable. Zero-length list indicates all sites.
PAUSE	RCMD	'PAUSE'	Y	
PP-SELECT	RCMD	'PP-SELECT'	Y	
	CPNAME$_1$	'PPID'	Y	PROCESSPROGRAMID parameter.
	CPVAL$_1$	A[80]	Y	The ID of the program to be loaded.
	CPNAME$_2$	'DEFINEDSITELIST'	N	DEFINEDSITELIST parameter.
	CPVAL$_2$	U4	N	DefinedSiteList value. Establish the initial default set of test-sites.
	CPNAME$_3$	'PROCESSPARAMETER'	N	PROCESSPARAMETER parameter.
	CPVAL$_3$	A[1..40]	N	ProcessParameter value. This is an optional parameter that has implementation specific meanings.
RESUME	RCMD	'RESUME'	Y	
	CPNAME$_3$	'PROCESSPARAMETER'	N	PROCESSPARAMETER parameter.
	CPVAL$_3$	A[1..40]	N	ProcessParameter value. This is an optional parameter that has implementation specific meanings.

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Service	*SECS-II Field*	*Values*	*Req.*	*Description*
START	RCMD	'START'	Y	
	$CPNAME_1$	'SELECTEDSITELIST'	N	SELECTEDSITELIST parameter.
	$CPVAL_1$	L,n 1. U4 2. U4 : n. U4	N	Provides single execution override of test-sites enabled/disabled by remote commands ENABLE-SITE and DISABLE-SITE.
	$CPNAME_2$	'DATALOGDATASETS'	N	DATALOGDATASETS parameter.
	$CPVAL_2$	L,n (n - # of datasets) 1. L,2 1. A[80] 2. List, p 1. U4 … p. U4 n. L,2 1. A[80] 2. L,q 1. U4 … q. U4	N	Datalog output can be directed to separate datasets on a per-test-site basis. L,n (n - # of datasets) 1. L,2 1. Dataset $Name_1$ 2. L,p (Zero-length list = all test-sites) 1. $SiteID_{11}$ … p. $SiteID_{1p}$ n. L,2 1. Dataset $Name_n$ 2. L,q (Zero-length list = all test-sites) 1. $SiteID_{n1}$ … q. $SiteID_{nq}$
	$CPNAME_3$	'DATALOGBYTESTTYPE'	N	DATALOGBYTESTTYPE parameter.
	$CPVAL_3$	L,b 1. L,3 1. U4 2. U4 3. U4 … b. L,3 1. U4 2. U4 3. U4	N	Specifies datalog options by general TestType. L,b (b = # of (TestType, TestStatus) pairs being assigned reports.) 1. L,3 1. $TestType_1$ 2. $TestStatus_1$ 3. $ReportID_1$ (If omitted, the default report is assigned.) … b. L,3 1. $TestType_b$ 2. $TestStatus_b$ 3. $ReportID_b$
	$CPNAME_4$	'DATALOGBYTESTID'	N	

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