ENDL
TEXAS

Date: 5 January 2003
To: T10 Technical Committee
From: Ralph O. Weber
Subject: Remove AEN from SPC-3

In November, T10 agreed to remove AER (Asynchronous Event Reporting) from SAM-3. This proposal follows that decision through by removing the AER component in SPC-3, AEN (Asynchronous Event Notification).

Summary of Changes

- Modify abstract to remove discussion of AER.
- Obsolete the standard INQUIRY data bit associated with AER.
- Obsolete several Control mode page fields.
- Remove multiple other references to AER.
- Remove the processor device command set from SPC-3, leaving the SPC-2 definition as the standard of record for the command set.

Revision History

r0 Initial proposal

Specific Changes

Change 1 [modify abstract]: On the ANSI title page, remove the following paragraph from the abstract:

~~The processor device model is defined in this standard. Some target SCSI devices may implement an initiator subset of the processor device model to support the Asynchronous Event Reporting capability defined in the SCSI-3 Architecture Model.~~

In the Foreword, remove the following paragraph:

~~The processor device model is defined in this standard. Some target SCSI devices may implement an initiator subset of the processor device model to support the Asynchronous Event Reporting capability defined in the SCSI-3 Architecture Model.~~

In clause 1 (Scope), remove the following paragraph:

~~Since a host processor is a part of any SCSI domain, the processor device model is defined in this standard. The commands that may be implemented by a SCSI processor device likewise are defined in this standard. Some target SCSI devices may implement an initiator subset of the processor device model to support the Asynchronous Event Reporting capability defined in the SCSI-3 Architecture Model.~~

Change 2 [glossary and acronyms]: Modify glossary entries as shown:

~~**3.1.12 asynchronous event reporting (AER):** A mechanism used by a logical unit to signal an initiator that an asynchronous event has occurred. The mechanism for asynchronous event reporting is protocol specific. A detailed definition of AER may be found in SAM-2.~~

3.1.88 sense data: Data describing an error or exceptional condition that a device server delivers to an application client as a result of an autosense operation (see 3.1.14)~~, asynchronous event report (see 3.1.12),~~ or

18484 Preston Road, Suite 102 PMB 178, Dallas, TX 75252 214-912-1373 972-596-2775 Fx ENDL_TX@computer.org

REQUEST SENSE command (see 7.24). The format of sense data is the format defined for parameter data returned by the REQUEST SENSE command in 7.24.2.

Remove the following acronym:

~~AER – Asynchronous Event Reporting (see 3.1.12)~~

Change 3 [persistent reservations model]: At the end of 5.5.2.7.5 (Preempting and aborting), remove the following paragraph:

~~Any asynchronous event reporting operations in progress are not affected by the PREEMPT AND ABORT service action.~~

Change 4 [standard INQUIRY data]: In Table 56 (Standard INQUIRY data format), mark the AERC bit obsolete. Remove the following paragraph:

~~An asynchronous event reporting capability (AERC) bit of one indicates the logical unit is a processor device (see table 58) and supports receiving asynchronous event reports with the SEND command (see 10.3). An AERC bit of zero indicates the logical unit is either not a processor device or it does not support receiving asynchronous event reports with the SEND command.~~

Change 5 [sense data]: Revise the first paragraph of 7.24.2.1 (Sense data introduction) as follows:

Sense data may be returned by the REQUEST SENSE command~~,~~ or with the SCSI status in autosense (see SAM-2)~~, or with AER (see SAM-2)~~. The REQUEST SENSE command may be used to request either the fixed format sense data or the descriptor format sense data. Autosense ~~and AER return~~ returns either fixed or descriptor format sense data format based on the value of the D_SENSE bit in the Control mode page (see 8.4.6).

Change 6 [deferred errors]: Revise the second and third paragraphs of 7.24.4 (Deferred errors) as follows:

~~The deferred error indication may be sent at a time selected by the device server through use of the asynchronous event reporting mechanism (see SAM-2), if AER is supported by both the application client and device server.~~

~~If AER is not supported, the~~ The deferred error may be indicated by returning CHECK CONDITION status to an application client on the appropriate initiator as described later in this subclause. A subsequent REQUEST SENSE command shall return the deferred error sense information.

Revise note 37 as follows:

NOTE 37 - A deferred error may indicate that an operation was unsuccessful long after GOOD status was returned. If the application client is unable to replicate or recover from other sources the data that is being written using buffered write operations, synchronization commands should be performed before the critical data is destroyed in the host. This is necessary to be sure that recovery actions may be taken if deferred errors do occur in the storing of the data. ~~If AER is not implemented, the~~ The synchronizing process should provide the necessary commands to allow returning CHECK CONDITION status and subsequent returning of deferred error sense information after all buffered operations are guaranteed to be complete.

Change 7 [logged errors]: Modify the last paragraph of 8.2.7 (Last n Error Events log page) as follows:

> When the last supported parameter code is used by an error-event record, the recording on this log page of all subsequent error information shall cease until one or more of the list parameters with the highest parameter codes have been reinitialized. If the RLEC bit of the Control mode page (see 8.4.6) is set to one, the device server shall return CHECK CONDITION status with the sense key set to RECOVERED ERROR and the additional sense code set to LOG LIST CODES EXHAUSTED. ~~Alternatively, the device server may report this condition via asynchronous event reporting (see SAM-2).~~

Change 8 [Control mode page]: In 8.4.6 (Control mode page), make the following changes.

Modify the first paragraph as follows:

> The Control mode page (see table 221) provides controls over several SCSI features that are applicable to all device types such as tagged queuing~~, asynchronous event reporting,~~ and error logging.

In Table 221 (Control mode page), mark the following fields obsolete: RAERP, UAAERP, EAERP, and READY AER HOLDOFF PERIOD. Remove the MSB and LSB marking from bytes 6 and 7.

Revise the description of the D_SENSE bit as follows:

> A descriptor format sense data (D_SENSE) bit of zero indicates that the device server shall return the fixed format sense data (see 7.24.2.3) during autosense (see SAM-2) ~~and AER (see SAM-2)~~. A D_SENSE bit of one indicates that the device server shall return descriptor format sense data (see 7.24.2.2) during autosense ~~and AER~~.

Revise the description of the UA_INTLCK_CTRL field as follows:

The unit attention interlocks control (UA_INTLCK_CTRL) field (see table 225) controls the clearing of unit attention conditions reported with autosense ~~or asynchronous event reporting~~ and whether returning a status of BUSY, TASK SET FULL or RESERVATION CONFLICT results in the establishment of a unit attention condition (see SAM-3 ~~SAM-2~~).

Table 225 — Unit attention interlocks control (UA_INTLCK_CTRL) field

Value	Definition
00b	The logical unit shall clear any unit attention condition reported with autosense ~~or asynchronous event reporting~~ and shall not establish a unit attention condition when a task is terminated with BUSY, TASK SET FULL, or RESERVATION CONFLICT status.
01b	Reserved
10b	The logical unit shall not clear any unit attention condition reported with autosense ~~or asynchronous event reporting~~ and shall not establish a unit attention condition when a task is terminated with BUSY, TASK SET FULL, or RESERVATION CONFLICT status.
11b	The logical unit shall not clear any unit attention condition reported with autosense ~~or asynchronous event reporting~~ and shall establish a unit attention condition when a task is terminated with BUSY, TASK SET FULL, or RESERVATION CONFLICT status. Depending on the status, the device server shall set the additional sense code to PREVIOUS BUSY STATUS, PREVIOUS TASK SET FULL STATUS, or PREVIOUS RESERVATION CONFLICT STATUS. Until it is cleared by a REQUEST SENSE command, a unit attention condition shall be established only once for a BUSY, TASK SET FULL, or RESERVATION CONFLICT status regardless to the number of commands terminated with one of those status values.
NOTE 1 Even when UA_INTLCK_CTRL equals 10b or 11b, a REQUEST SENSE command still clears any unit attention condition that it reports.	

Remove the RAERP, UAAERP, and EAERP bit descriptions as follows:

~~The RAERP, UAAERP, and EAERP bits enable specific events to be reported via the asynchronous event reporting protocol. When all three bits are zero, the target shall not use asynchronous event reporting. AER is defined in SAM-2.~~

~~A ready AER permission (RAERP) bit of one specifies that the device server may issue an asynchronous event report in response to establishing a unit attention condition at the completion of its initialization sequence. A RAERP bit of zero specifies that the device server shall not issue an asynchronous event report in response to establishing a unit attention condition at the completion of its initialization sequence.~~

~~NOTE 55 - If the device server's default value for the RAERP bit is one and it does not implement saved parameters or include a hardware switch, then it may be impossible to disable initialization sequence completion asynchronous event reporting.~~

~~A unit attention AER permission (UAAERP) bit of one specifies that the device server may issue an asynchronous event report upon establishing a unit attention condition for an event other than the completion of an initialization sequence. A UAAERP bit of zero specifies that the device server shall not issue an asynchronous event report upon establishing a unit attention condition for an event other than the completion of an initialization sequence.~~

~~An error AER permission (EAERP) bit of one specifies that the device server may issue an asynchronous event report upon detecting a deferred error condition instead of waiting to report the deferred error on the next~~

~~command. An EAERP bit of zero specifies that the device server shall not report deferred error conditions via an asynchronous event reporting.~~

Remove the READY AER HOLDOFF PERIOD description as follows:

~~The READY AER HOLDOFF PERIOD field specifies the minimum time in milliseconds after the target starts its initialization sequence that it shall delay before attempting to issue an asynchronous event report. This value may be rounded up as defined in 5.3.~~

Insert the following as the last paragraph in the subclause:

Bits 0, 1, and 2 of byte 4 as well as bytes 6 and 7 provide controls for the obsolete asynchronous event reporting feature.

Change 9 [informational exceptions]: In Table 232 (Method of reporting informational exceptions (MRIE) field), modify code value 1h as follows:

Asynchronous event reporting: Obsolete ~~This method instructs the device server to report informational exception conditions by using the rules for asynchronous event reporting as described in SAM-2 and the relevant SCSI transport protocol standard. The informational exception conditions are not reported if the UAAERP bit is set to zero in the Control mode page (see 8.4.6).~~

~~The sense key shall be set to RECOVERED ERROR and the additional sense code shall indicate the cause of the informational exception condition.~~

Change 10 [processor command set]: Since the processor command set has appeared in SPC only because of its importance for AER, remove the following clauses in their entirety:

- 6 Model for processor devices
- 10 Commands for processor type devices

The effect of this change is that SPC-2 becomes the definition of record for the processor command set.