

Pinnacles Component Information Standard 1.2 —The PCIS tag library

ICS 35.240.30

National foreword

This Draft for Development is the English language version of ENV 50247-1:1998.

This publication is not to be regarded as a British Standard.

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Comments arising from the use of this Draft for Development are requested so that UK experience can be reported to the European organization responsible for its conversion into a European Standard. A review of this publication will be initiated 2 years after its publication by the European organization so that a decision can be taken on its status at the end of its three-year life. The commencement of the review period will be notified by an announcement in *Update Standards*.

According to the replies received by the end of the review period, the responsible BSI Committee will decide whether to support the conversion into a European Standard, to extend the life of the prestandard or to withdraw it. Comments should be sent in writing to the Secretary of BSI Technical Committee GEL/93, Design automation, at 389 Chiswick High Road, London W4 4AL, giving the document reference and clause number and proposing, where possible, an appropriate revision of the text.

Cross-references

The British Standards which implement international or European publications referred to in this document may be found in the BSI Standards Catalogue under the section entitled “International Standards Correspondence Index”, or by using the “Find” facility of the BSI Standards Electronic Catalogue.

Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 417 and a back cover.

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English version

Pinnacles Component Information Standard 1.2

The PCIS tag library

This European Prestandard (ENV) was approved by CENELEC on 1996-12-09 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CENELEC will be requested to submit their comments, particularly on the question whether the ENV can be converted into a European Standard (EN).

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

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Foreword

This European Prestandard has been produced by The Pinnacles Group (predominantly) and by CENELEC Technical Committee TC 217, Electronic Design Automation (EDA). The text of the draft was submitted to the CENELEC members for comments and was discussed during the CLC/TC 217 meeting on 1996-12-09. It was approved by CENELEC as ENV 50247-1 on 1997-03-11.

The following date was fixed:

- latest date of announcement of the ENV at national level (doa) 1999-02-01

The Pinnacles Component Information Standard 1.2 (PCIS 1.2) was developed by members of the Pinnacles Group who collaborated towards internationally agreed standards in the area of electronic data book technology.

The original development of the PCIS standard was accomplished under the coordination of the Pinnacles Group, with members from five electronic component manufacturers who joined together to create a technical information exchange standard for use by the electronics industry. These original member companies have all been active members of the Silicon Integration Initiative, Inc. (Si2) electronic databook working group, and it was in conjunction with Si2 (then the CAD Framework Initiative, Inc.) activities that the original concept of the PCIS was developed. The original work of Hitachi America Limited, Intel, National Semiconductor, Philips Semiconductors, and Texas Instruments was extended when Hewlett-Packard, IBM Microelectronics, and Motorola joined the effort. Representatives of Hewlett-Packard, Hitachi America Limited, IBM Microelectronics, Intel, Motorola, Philips Semiconductors, and Texas Instruments currently serve as members of the Si2 Electronic Component Information Exchange (ECIX) Project Technical Advisory Board.

Additional information regarding tools, customers and related specifications may be found at <http://www.si2.org/ecix/>.

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General Introduction

Scope and object

The purpose of this European Prestandard is to model electric component data and to define an interchange format for that data (Electronic Data Book -EDB- standard) which is independent of the component supplier or the customers CAD environment.

The Pinnacles Component Information Standard (PCIS) is being developed to serve as a basis for the interchange of technical information about electronic components and to enable electronic component manufacturers to create and distribute a new form of compiled information, Electronic Data Books (EDBs), by electronic component manufacturers. An established, documented interchange standard is a necessary precursor for both of these tasks.

The PCIS principles and methodology may be applied to any kind of electric component, such as semiconductor devices, passive components, display components etc.

An interchange standard will enable companies to provide reusable technical data to customers and vendors. Currently, customers and vendors must rekey this data into their systems. Such rekeying is often an extremely inefficient, inaccurate, time-consuming, and costly process. The interchange standard will define ways to identify information elements so that customers and vendors can receive, process, and extract only the information they need.

In addition, manufacturers themselves will be able to identify, organize, and offer more useful information to customers through the implementation of Electronic Data Books. An EDB is a comprehensive set of information about one or more electronic components, including active and passive components, materials, and connectors. As the PCIS defines an EDB, it could include both the textual and graphic information currently published in databooks and datasheets and other computer-sensible data types such as CAD files, behavioral and functional models, and audio and video recordings. In short, an EDB could include all the data that a company wishes to provide to facilitate the design-in and support of an electronic component.

EDBs will increase the quality of product information by improving its accuracy, accessibility, and timeliness, as well as by enabling CAD integration. Such improvements will help customers realize benefits in product identification and selection, reduce design-in and qualification cycle-times, and improve product life-cycle management, among other benefits.

Structure of the Pinnacles Component Information Standard (PCIS)

This version of the PCIS describes only the SGML component of the developing interchange standard. This Tutorial and the accompanying parts are the first in a series of documents that will be necessary to support the standard. Other documentation, such as a physical packaging standard and graphics standards, will be developed and described in future efforts.

The Pinnacles Component Information Standard 1.2 is organized into four main parts:

- The PCIS Tutorial (document CENELEC R217-015: 1996 E) that describes the SGML architecture, intended use and application of the PCIS standard, and the rationale for the SGML design decisions
- The PCIS Tag Library (document CENELEC ENV 50247-1: 1996 E), that provides definitions of the information elements within electronic component documents;
- The SGML Declaration and SGML Document Type Definitions (document CENELEC ENV 50247-2: 1996 E) that describe the class of electronic components documents; and
- Tagged sample datasheets and datasheet fragments (document CENELEC R217-016: 1996 E).

Users of the Pinnacles Component Information Standard

PCIS will be used by many different types of users, with different benefits accruing to each type.

- Original Information Producers (OIPs) are companies who produce electronic components and materials and who supply information about those components to their customers.
- Value-Added Providers (VAPs) are companies who are in the business of adding value to a manufacturer's information (for example, models, simulations, etc.) and charging customers a fee for the value they add.
- Tool Suppliers supply hardware/software tools, such as CAD/CAE systems, publishing systems, database management systems, etc., to the industry.
- Equipment Producers (EPs) are companies or end users who design electronic products which include the components supplied by OIPs.

Each of these various types of users has a big stake in producing his work as efficiently as possible.

PCIS is designed to provide the most efficient transfer and re-use of component information possible, in both human- and computer-sensible form.

Relation to existing standards

PCIS has been build on existing standards activities where appropriate. PCIS 1.2 was placed in the public domain as an open standard.

The PCIS is an application of the meta-language of Standard Generalized Markup Language (ISO 8879:1986, also known as SGML). It is highly subject/content oriented, with a great deal of structure that can be used to describe the characteristics of electric components.

Clause 2.1 of the PCIS SGML Tutorial (document CENELEC R217-015: 1996 E) describes the reasoning behind this decision and the benefits and drawbacks of SGML usage. SGML is a technical standard, and it is not expected that all readers of this document will necessarily understand the minutiae of its use and syntax. More detailed information about SGML is given at the informative annexes.

Currently there are no analogous standards activities for the electrical component industry that match the PCIS in scope, or applicability to the many phases of the business process and product life-cycle.

It is in no way the intention of the Pinnacles Group to duplicate existing standards, but rather to interoperate with related standards or standards activities such as:

- IEC SC3D; generating the IEC 1360 series of standards "Standards data element types with associated classification scheme for electric components";
- JEDEC;
- ISO 10303 (STEP);
- ESPRIT Project 22124-CIREP "Component Information Representation European Project";

The Pinnacles Group

The development of the Pinnacles Component Information Standard has been accomplished under the coordination of the Pinnacles Group, a non-affiliated standards working group with members from five electronic component manufacturers who joined together to create a technical information exchange standard for use by the electronic components industry. The member companies have all been active participants in the CAD Framework Initiative (CFI) Electronic Databook Working Group (EDB WG), and it was in conjunction with CFI activities that the original concept of the PCIS developed.

In discussion, it became clear to representatives of the various companies that creating such a standard would be difficult and time-consuming in a volunteer setting without expert assistance. As a result, a proposal was made to establish a privately-funded initiative that could address the CFI objectives as well as business issues outside the scope of the CFI. In April of 1993, after a year of preliminary work, Intel, National Semiconductor, Philips Semiconductors, and Texas Instruments signed an agreement to join forces under the working name "Pinnacles Group" to

produce a technical information interchange standard to be called the Pinnacles Component Information Standard (PCIS). In July of 1993 Hitachi America Limited joined the Pinnacles Group as a full partner, more recently (1995) Hewlett Packard and IBM Microelectronics joined.

Soon after its inception in 1993, the European contribution to the development of PCIS became a part of CENELEC TC 217 WG 4, itself a part of the ESPRIT Project ESIP, ultimately resulting in the current documents as referenced in clause 1.2.

Informative references

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The SGML Implementation Guide, Travis, Brian & Waladt, Dale, Springer-Verlag, 1995

IEC 1360-1 Standard data element types with associated classification scheme for electric components - part 1: Definitions - Principles and methods

IEC/48/FDIS Standard data element types with associated classification scheme for electric components - IEC reference collection of standard data element types, component classes and terms - (to become IEC 1360-4)

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Introduction to the PCIS Tag Library

1 Introduction

In an SGML application, a Tag Library is the document that communicates the results of the document analysis to the user community. An SGML Tag Library identifies and defines all the data elements, as a data dictionary does in a data-processing application. The Pinnacles Component Information Standard Tag Library summarizes the document structure information in the Document Type Definitions, for readers who choose not to read the SGML syntax, and provides fuller explanations and descriptions of the elements than can be written into a DTD. The PCIS Tag Library and PCIS DTDs may be considered to be overlapping descriptions of the same information. They each describe how a properly tagged PCIS document can be constructed. The DTDs provide this information in a machine-readable form for use by SGML parsers and application software. The Tag Library provides an expanded version of this information in human-readable form.

The PCIS Tag Library is divided into several sections.

1. General Introduction;
2. Brief description of the syntax of SGML content model ;
3. Descriptions of all the PCIS Elements;
4. Descriptions of all the PCIS Attributes;
5. Descriptions of all the PCIS SGML Entities;
6. Index showing PCIS element names in which each element is matched with its tag name; and
7. Index showing PCIS tag names in which each tag is matched with its full element name.

1.1 PCIS Element Descriptions

Section 4 of Part B of the Pinnacles Component Information Standard describes each element that can appear within the PCIS DTDs and, by extension, within any PCIS-encoded document. For each element, this description presents the following information:

- **Element** - The full name of the document element, usually a word or phrase that identifies the element (for example, Paragraph or Test House Approval). Throughout the Tag Library, the names of elements are written using initial capital letters.
- **Tag** - The SGML tag name for the element, the short form of the element name that will be inserted into the machine-readable version of the tagged document. Throughout the Tag Library, tag names are presented surrounded by SGML delimiters and printed in a different font to clearly indicate they are tags (for example <p> or <testhouse.approval>).
- **Definition** - A plain-language description of the element, as written (defined) by participants in the Pinnacles document analysis workshops. This definition is intended to provide enough information to distinguish the element from other elements and is not necessarily rigorous.
- **Remarks** - Additional information concerning the element that may help to differentiate it from similar elements, provide some illustrative examples, or direct the reader to related elements.
- **Attribute(s)** - The names of all SGML attributes that may be associated with the element. Many of the PCIS elements are associated with SGML attributes. These attributes are described in full in Section 4 of this Tag Library. The attribute portion of the element description provides the attribute's description, followed by its name (in parentheses), followed by the attribute's default value when associated with this element.

There are three possible default values:

- An actual value such as "42" or "IGES": the value will be shown in quotation marks;

- **REQUIRED:** the document creator **MUST** enter a value; SGML requires it; and
- **IMPLIED:** the attribute is optional. If the document creator fails to enter a value, the SGML application will make some assumption.

Many of the attributes are used with more than one element. It is important to note that the same attribute may have different default values depending on the element it is associated with. For example, the attribute `div.class` has a default value of "detail.spec" on the element Product Mechanical Information, but a default of "safety.envir.info" on the element Safety Information.

- **Pool(s)** - Pools are collections of elements that have been given a name, so that you can refer to all the elements in the group by referring to the name. For example, the List Pool contains all the types of lists in PCIS. If the element is part of one or more such groupings, pool information is provided. In many cases all elements in a pool may occur in the same contexts and have similar contents.
- **Content** - What the element may contain. An SGML element is a "bucket" that surrounds data. An element in an SGML tagged document may be empty or it may contain data characters, other elements, or a combination of data and elements. This part of the Tag Library describes what an element may contain.
- **Pool** - Some elements may contain any of the elements in a named Pool of elements. In that case, instead of listing all of the elements, the Pool name is given. Full definitions of the Pools with lists of their included elements are provided below.
- **Content Diagram** - In some cases a Near & Far diagram is provided to give a graphical representation of the structure of an element, and where the element may occur within a document. (See below for a description of how to read the Near & Far Diagrams).
- **Context** - Where in a PCIS document an element may be used. For example, a Table Group must occur inside a Table, while there is a long list of elements in which a Paragraph may be used. Some elements may contain any of the elements in an element Pool, and in that case instead of listing all of these elements the Pool name is given. Full listings of the Pool elements are provided below. In some cases a Near & Far diagram is provided to give a graphical representation of the structure of an element. (See below for a description of the codes in Near & Far Diagrams).
- **SGML Model** - For readers who understand SGML syntax, the SGML content model is given.
- **Formatted Example** - A formatted example of the element as it may appear in print or a pointer to such as formatted example is provided (when available). Formatted examples are used sparingly, mostly to illustrate elements like Superscript `<super>`, which is very easy to demonstrate and more difficult to define.
- **Tagged Example** - A fragment of an SGML-tagged document showing the element in context (when available). These fragments are often partial, and may contain ellipses (...) to indicate that text has been omitted. For full tagged sample documents, see the tagged examples in Part D (when available).
- **Revision History** - The date on which the DTD or the tag library description of the element was last modified.

1.2 PCIS Attribute Descriptions

The PCIS attribute section describes each SGML attribute whose value may change in PCIS-encoded documents. Each SGML attribute can be associated with one or more elements and provides information about the element such as its status, its type, or whether the information in the element is defined by an industry or international standard. Throughout the PCIS, the same attribute name may be available (or in some cases required) with several different elements. When this happens the definition of the attribute and the possible values are the same for each context in which the attribute may be used. In some cases the default value for an attribute will depend on the element with which it is associated. (The PCIS also has a few fixed attributes whose value is set in the DTD. Since authors may not change the values of these attributes they are not described in this Tag Library.)

For each attribute, the Tag Library description presents the following information:

- **Attribute** - The name of the attribute as it is used in the DTDs and in tagged documents. The name of the attribute is followed by a description (in parentheses) that expands the attribute name into a plain-language phrase (for example "aggtrav (Aggregate Traversal)").
- **Definition** - A short plain-language description of the attribute in sufficient detail to identify the attribute and define its meaning.
- **Use** - Explains why the attribute should or might be used, in those cases where it is not obvious from its definition.
- **Content** - Describes the values the attribute may take when used in PCIS-encoded documents. If the attribute has a specific set of values (such as "yes" or "no" in response to a question) the values are listed with a short explanation of what it means to use that value. (For example, the value "1" means print or display the element to which this attribute is attached, and the value "0" means don't print or display the element.)
- **Associated With** - A list of the elements with which this attribute is associated. The element name (in initial caps) is listed followed by the tag name, which is surrounded by SGML delimiters and printed in a different font. For example Highlight <highlight> and Title <title>.
- **Remarks** - Additional information concerning the attribute that may help to differentiate it from similar attributes, provide some illustrative examples, or direct the reader to related attributes.
- **Revision History** - The date on which the attribute or its description was last modified.

1.3 Near & Far Diagrams

Near & Far is a product of MicroStar Corporation

Near and Far® is an SGML tool that produces graphical representations of SGML structures, which resemble tree diagrams made up of little boxes. Each box represents one element and contains a shorter Tag name instead of the full Element Name. The content models of SGML Document Type Definitions (DTDs) are displayed in NEAR & FAR as hierarchical trees from left (top) to right (down the tree).

In the Near & Far hierarchy, all of the elements that may occur within an element appear to the right of the element's box. The relationships between these elements are indicated with the following symbols:

Followed by. These elements must occur in the document in the sequence in which they appear on the page. (front contains a forward followed by a preface followed by an intro.)

In any order. These elements may occur in any order. (front contains a foreward, a preface, and an intro, in any order.)

Choice. Any one of these elements may occur, but no more than one. (front contains either a forward, or a preface, or an intro, but only one of the three.)

In SGML the DTD may specify how many times an element may occur. Symbols to indicate repeatability occur at the left side of the box containing the tag, as follows:

One occurrence of the object (required). (This document must contain one docpart.)

Zero or one occurrence of the object (optional). (This document may contain an index.)

Zero or more occurrences of the object (optional and may be repeated) (This document may or may not contain an appendix. If there is one appendix, there may be more.)

One or more occurrences of the object (required and may be repeated). (This document must contain one docpart and may contain many docparts.)

One or more selections of the objects in the selection connector. (This document may contain as many paragraphs and warnings as you need, in any order, but it will contain at least one.)

Exceptions to SGML content models are rules that say something that otherwise would be allowed here is not allowed (exclusion), or something is allowed to occur anywhere inside here (inclusions). While very few exceptions are used in PCIS, a few occur in the CALS table model, which is included.

Near & Far® shows excluded elements with a slashed circle, and included elements with a circle. (A table may contain footnotes anywhere. A table may not contain another table or a figure). (A table (you may ignore the %tabl), contains a title followed by one or more tgroup.)

1.4 PCIS Entity Descriptions

Note to readers who are not SGML-literate: Unlike the element and attribute sections, which contain information fundamental to understanding and using the PCIS, this section contains information that is most useful to application developers and DTD designers. It will be possible to create and interpret PCIS documents without knowing anything about these SGML parameter entities.

A parameter entity is an SGML syntactic construct that can be used (among other functions) to name collections of related objects. (The word parameter is used here in the SGML sense and has nothing to do with Characteristics!) The PCIS DTDs use parameter entities to group elements that will be used together or treated in the same way within the PCIS documents. For example, if element AA can contain any of the elements in the tech.para pool, it means that any of the elements defined as being in the tech.para parameter entity may be used inside the element named AA.

The PCIS Entity Descriptions Section contains the following information:

- An introduction to SGML parameter entities;
- An overview of the entities used to modularize the PCIS DTDs;
- An overview of the entities which define attributes Declared Content value lists;
- An overview of the entities which define collections of attributes;
- An overview of the entities which define content models;
- The names of the ISO special character entity sets;
- An overview of the most common category of parameter entity, the entities used for collections of elements; and
- An Entity Dictionary.

The Entity Dictionary names and defines each parameter entity used in the PCIS DTDs. For each entity, this description presents the following information:

Entity	the name of the parameter entity as it is used in the DTDs. The name of the entity is followed by a word or phrase in parenthesis that expands the entity name into a plain-language phrase. For example arch.func (Divisions usually in Architectural/Functional Description class);
Definition	A short plain-language description of the entity in sufficient detail to identify the entity and define its meaning; and
Contents	the SGML entity declaration.

2 Brief Introduction to SGML Content Models

SGML tagging is based on the concept that parts of document (called elements) can be identified and tags inserted in the text that indicate where the element begins and ends. Each element may contain either smaller elements or text. When an element contains other elements it is possible that those other elements must occur in a particular sequence, or that there are other rules about the relationships between the elements. The SGML content model is that machine-readable form of the rules that govern the relationships between the elements which are inside another element.

In general terms, an SGML content model is an expression delimited by parentheses used to completely and unambiguously define what can be contained within an element. Content models have been included for each element in the PCIS Tag Library for the convenience of those who read and understand SGML.

2.1 What are the Relationships?

Relationships between elements are expressed by connectors inside content models:

Table 1.

Connector	Read As	For Example:
,	followed by	(title, p) read as "title followed by paragraph"
	or	(table fig) reads as "either table or figure"
&	and	(A&B) reads as "both A and B, in any order"

Within the outer enclosing parenthesis, additional parentheses may be used to group elements, and imply sequence of interpretation, just as they do in mathematical equations. For example:

```
((title, (title.alt | sub.title))
```

can be read as "a title, followed by either an title.alt or a sub.title."

2.2 How Often?

Occurrence indicators applied to the elements and parenthetical groups in a content model indicate how often the element or group may or must occur in the document. If no indicator is present, the element or group is required and may occur only once.

Table 2.

Indicator	Read As	Means
?	optional	may occur in the document 0 or 1 time
+	repeatable	must occur in the document 1 or more times
*	optional repeatable	may occur in the document 0 or more times

2.3 Other Syntax

SGML parameter entities, which look like element names but start with a "%" and end with a ";" (for example "%div.model;") are used to represent a part of a model that is defined somewhere else. The entities are defined in SGML syntax in the PINNBASE.ENT and in human-readable form in Tag Library Section 5.

There are also some special SGML terms used in content models:

#PCDATA	Is ordinary text that can include special characters (such as omega (ω), or acute e ($\acute{e}$)). #PCDATA does not need an occurrence indicator because it is defined to mean 0 or more; and
EMPTY	Means that the element has no content at all. EMPTY elements are frequently used to hold attributes.

2.4 Sample Content Models

For example, the content model:

```
(#PCDATA | %all.phrase; )*
```

can be interpreted to mean:

1. either ordinary text (character data) or
2. 0 or more of the elements in the all.phrase element grouping
3. or both, as many times as necessary.

For example, the content model:

```
(title?,toc?,author.info?,abstract?,  
(%gen.para; | %tech.para; |%admin.para; )*,  
(%div.elems; )* )
```

can be interpreted to mean:

1. an optional Title <title>
2. followed by an optional Table of Contents <toc>;
3. followed by an optional Author Information <author.info>;
4. followed by an optional Abstract <abstract>;
5. followed by 0 or more of the elements in the gen.para grouping, the tech.para grouping, and the admin.para grouping, in any order as often as needed;
6. followed by 0 or more of the elements in the div.elems grouping.

3 Pool Listings

Many elements have been assigned to groupings called Pools. A Pool is a collection of elements that have been given a name, so that you can refer to all the elements in the group by referring to the name. For example, the List Pool contains all the types of lists in PCIS. In other words, a Pool is a list of elements that share either the way they are used or the way they are structured.

Pools are referred to by name in many places in the Tag Library, to save space and make the Tag Library more easily understood. Each of the PCIS Pools is listed below, with a full listing of the elements contained in that Pool. Whenever the Tag Library refers to a pool by name, it means that each of the elements in that list is included in the discussion.

The Pool concept is a shorthand for describing element internal structure. Another shorthand (as an alternative to listing all the elements which an element may contain) is to name the content model. If two elements have the same content model, this means that they are allowed to have exactly the same elements and structure inside them. There are two division-level content models used frequently throughout the PCIS. These two models are described at the end of this listing: see the General Division Model and the Technical Division Model.

3.1 The Display Pool

- Audio/Visual Object <avo>
- Audio/Visual Object Group <avo.group>
- Display Math <display.math>
- Figure <fig>
- Table <table>
- Verbatim Text <verbatim>

3.2 the Emphasis pool

- Highlight <highlight>
- Negation (Not) Indication <not>
- Subscript <sub>
- Keep Together <together>
- Superscript <super>

3.3 the General Division Elements pool

- Directions for Installation and Use <use.info>
- General Division <gen.division>
- Intended Application of Model or Support Tool <intended.application>
- Supplementary Information <supplementary.info>
- Table of Contents <toc>
- Vendor Information <vendor.info>

3.4 the General Paragraph-Level Elements pool

- Audio/Visual Object <avo>
- Audio/Visual Object Group <avo.group>
- Caution <caution>
- Definition List <def.list>
- Display Math <display.math>
- Figure <fig>

- Note in Text <note.in.text>
- Ordered List <ordered.list>
- Paragraph <p>
- Table <table>
- Unordered List <unordered.lis>
- Verbatim Text <verbatim>
- Warning <warning>

3.5 the General Phrase pool

- Clink (HyTime Contextual Link) <clink>
- Cross-Reference <xref>
- External Cross-Reference <external.xref>
- Footnote <footnote>
- Footnote Reference <footnote.ref>
- Highlight <highlight>
- Ilink (HyTime Independent Link) <ilink>
- Index Entry <index.entry>
- Keep Together <together>
- Name Location Address <nameloc>
- Negation (Not) Indication <not>
- Reflection <reflection>
- Subscript <sub>
- Superscript <super>

3.6 the Inside-a-Paragraph Elements pool

- Address <address>
- Compatible or Related Products <compatible.prod>
- Contact Information <contact.info>
- Disclaimer <disclaimer>
- Enterprise <enterprise>
- License Statement <license.statement>
- Platforms Supported <platforms.supported>
- Test House Approval <testhouse.approval>
- Trademark Statement <trademark.statement>

3.7 the Link pool

- Clink (HyTime Contextual Link) <clink>
- External Cross-Reference <external.xref>

- Ilink (HyTime Independent Link) <ilink>
- Name Location Address <nameloc>
- Cross-Reference <xref>

3.8 the List pool

- Definition List <def.list>
- Ordered List <ordered.list>
- Unordered List <unordered.list>

3.9 the Paragraph-Level Elements pool

- Acknowledgments <acknowledge>
- Audio/Visual Object <avo>
- Audio/Visual Object Group <avo.group>
- Caution <caution>
- Code Listing <code.listing>
- Copyright Notice <copyright>
- Definition List <def.list>
- Display Math <display.math>
- Figure <fig>
- Function Table <function.table>
- Note in Text <note.in.text>
- Ordered List <ordered.list>
- Ordering Information Template <order.template>
- Paragraph <p>
- Patents List <patents.list>
- Status Definitions <status.def>
- Table <table>
- Trademarks List <trademarks.list>
- Unordered List <unordered.list>
- Verbatim Text <verbatim>
- Warning <warning>

3.10 the Phrase pool

- Clink (HyTime Contextual Link) <clink>
- Copyrighted <copyrighted>
- Cross-Reference <xref>
- External Cross-Reference <external.xref>
- Footnote <footnote>

- Footnote Reference <footnote.ref>
- Highlight <highlight>
- Ilink (HyTime Independent Link) <ilink>
- Index Entry <index.entry>
- Inline Math <inline.math>
- Keep Together <together>
- Name Location Address <nameloc>
- Negation (Not) Indication <not>
- Package Designator <package.designator>
- Package Name <package.name>
- Reflection <reflection>
- Standards Body <stds.body>
- Subscript <sub>
- Superscript <super>
- Trademarked <trademarked>

3.11 The Technical Division Elements Pool

- Absolute Maximum <abs.max>
- Address Modes <address.modes>
- Application Division <application.division>
- Application Summary <application.summary>
- Architectural Functional Description <arch.func.desc>
- Available Options <available.options>
- Bus Modes <bus.modes>
- Compatibility Information <compatibility.info>
- Device Programming <device.programming>
- Environmental Impact <environment.impact>
- Features Summary <features.summary>
- General Description <general.desc>
- Hardware Tools and Accessories <hardware>
- Instruction Set Information <instruction.set.info>
- Memory Capacity <memory.capacity>
- Memory Map <memory.map>
- Package Information <package.info>
- Performance Information <performance.info>
- Pin Out Information <pin.out.info>
- Product Characterization Information <prod.char.info>
- Product Family Summary/Overview <family.summary>

- Product Mechanical Information <prod.mechanical.info>
- Product Operating Conditions <prod.operating.cn>
- Product Technical Division <division>
- Register Sets <register.set>
- Safety Information <safety>
- Shipping Container <shipping.container>
- Software Tools and Accessories <software>
- Soldering and Mounting <soldering.mounting>
- State Information <state.info>
- Storage Requirements <storage.requirements>
- Transport Media <transport.media>

3.12 the General Division Model gen.div.model

- Title <title>
- followed by
- Table of Contents <toc>
- Author Information <author.info>
- Abstract <abstract>
- the General Paragraph-Level Elements pool
- General Division <gen.division>

3.13 the Technical Division Model tech.div.model

- Title <title>
- followed by
- Table of Contents <toc>
- Author Information <author.info>
- Abstract <abstract>
- the Paragraph-Level Elements pool
- the Technical Division Elements pool

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PCIS Element Descriptions

Element: Absolute Maximum

Tag: <abs.max>

Definition:

Describes the specified limit for any external influence beyond which the product may be damaged or have its useful life shortened.

Remarks:

Absolute Maximum is the division that usually contains absolute max current, environmental ratings, power, ratings, etc. Usually written as a table, abs.max may include but is not limited to electrical, thermal, and assembly technique maximums. Part of the Product Information, Absolute Maximum ratings may be set by process, family, or package.

Absolute Maximum is defined for the intended use or storage of the product, not necessarily for the process of programming the product. If a condition destroys the results of the product's programming but not the product, that is not an Absolute Max. The Absolute Maximum is usually beyond the range of the Product Operating Conditions <prod.operating.cn>. Rating system may conform to IEC 134.

Attribute(s):

<u>Description (Attribute Name)</u>	<u>Default</u>
division class "div.class"	"detail.spec"
id "id"	REQUIRED
label "label"	IMPLIED
language id "lang.id"	IMPLIED
product id fragment "pid.fragment"	IMPLIED

Content:

the Technical Division Model

Pool(s):

- Part of the Technical Division Elements pool

SGML Model:

```
<!ELEMENT abs.max      - - (%tech.div.model;)      >
<!ATTLIST abs.max
    -- Class or type of data in division --
    div.class    (%classes;)    "detail.spec"
    -- Common Division Attributes --
    %div.att;    >
```

Tagged Example:

```
<ABS.MAX ID="P1150" PID.FRAGMENT="PCF29F64">
<TITLE ID="P1151">LIMITING VALUES</TITLE>
<P ID="P1152">In accordance with Absolute Maximum Rating System
(<STDS.BODY STD="IEC">134</STDS.BODY>).</P>
<TABLE FRAME="all" ID="P1153">
<TGROUP COLS="2"><COLSPEC COLNUM="1" COLNAME="TBODY1">
<COLSPEC COLNUM="2" COLNAME="TBODY2">
<TBODY><ROW ID="s205"><ENTRY COLNAME="TBODY1" ID="s206"><P
ID="P1155">SYMBOL</P></ENT RY>
<ENTRY COLNAME="TBODY2" CHAROFF="0" ID="s207"><P
```

```
ID="P1156">PARAMETER</P></ENTRY></ROW>
<ROW ROWSEP="1" ID="s212"><ENTRY COLNAME="TBODY1"
ID="s213"><PID="P1161"><REFLECTION SOURCE.REF="k305"></P></ENTRY>
<ENTRY COLNAME="TBODY2" ID="s214"><P ID="P1162"><REFLECTION
SOURCE.REF="k306"></P></ENTRY>;</ROW>
</TBODY></TGROUP></TABLE></ABS.MAX>
```

Element: Abstract

Tag: <abstract>

Definition:

A short description of an application or application area, intended to provide an introduction or summary to a document.

Remarks:

In current PCIS documents, PCIS Application Note <pcis.appnote> are most likely to include an Abstract.

Attribute(s):

<u>Description (Attribute Name)</u>	<u>Default</u>
division class "div.class"	IMPLIED
id "id"	REQUIRED
label "label"	IMPLIED
language id "lang.id"	IMPLIED
product id fragment "pid.fragment"	IMPLIED

Content:

- Title <title> followed by
- Paragraph <p>

SGML Model:

```
<!ELEMENT abstract      - - (title?,p+)>
<!ATTLIST abstract      %common.att;    >
```

Element: Acknowledgments

Tag: <acknowledge>

Definition:

A division within a document, possibly headed by a <title>, that is used to thank a person, enterprise, source of material, etc. that the author chooses to mention.

Attribute(s):

<u>Description (Attribute Name)</u>	<u>Default</u>
division class "div.class"	IMPLIED
id "id"	REQUIRED
label "label"	IMPLIED
language id "lang.id"	IMPLIED
product id fragment "pid.fragment"	IMPLIED

Content:

- Title <title>
- followed by Paragraph <p>
- Caution <caution>
- Note in Text <note.in.text>
- Warning <warning>
- elements in the List pool
- elements in the Display pool

Pool(s):

Part of the Paragraph-Level Elements pool

SGML Model:

```
<!ELEMENT acknowledge - - (title?, (%gen.para;)* ) >  
<!ATTLIST acknowledge %common.att; >
```

Element: Address

Tag: <address>

Definition:

The address of a person or an enterprise.

Remarks:

This is the location of a <person> or <enterprise> and not to be confused with the microprocessor meaning of address, which is the location of each byte of memory or I/O. This is an address as the Post Office uses the term, a location to which mail could be delivered.

Address is not subdivided into named elements; therefore, no part (such as the country or zip code) of the address is specifically searchable by element name. The Line tag <line> may be used to divide the address into lines for print or display.

Attribute(s):

<u>Description (Attribute Name)</u>	<u>Default</u>
id "id"	REQUIRED
product id fragment "pid.fragment"	IMPLIED

Content:

Characters (letters, numbers, punctuation) with Line <line> and phrases, as needed.

Pool(s):

- Part of the Inside-a-Paragraph Elements pool

SGML Model:

```
<!ELEMENT address - - (#PCDATA | line |  
                        %gen.phrase;)* >  
<!ATTLIST address  
    -- Shared Attributes (include ID) --  
    %tech.att; >
```

Tagged Example:

```
<UNORDERED.LIST LIST.STYLE="SIMPLE" ID="P1618"><LI ID="P1619">  
<P ID="P1620"><HIGHLIGHT HIGHLIGHT.PREF="bold">Argentina</HIGHLIGHT>  
<ADDRESS ID="s744"> IEROD,  
Juramento 1.991 - 14'E, 1428 Buenos Aires, Tel. (541)786-76-35,  
Fax. (541)786-93-67</ADDRESS></P></LI>
```

Element: Address Modes

Tag: <address.modes>

Definition:

Methods for addressing memory or I/O locations.

Remarks:

Locations may be addressed directly by their hexadecimal locations or indirectly through registers.

Attribute(s):

<u>Description (Attribute Name)</u>	<u>Default</u>
division class "div.class"	"detail.spec"
id "id"	REQUIRED
label "label"	IMPLIED
language id "lang.id"	IMPLIED
product id fragment "pid.fragment"	IMPLIED

Content:

the Technical Division Model

Pool(s):

- Part of the Technical Division Elements pool

SGML Model:

```
<!ELEMENT address.modes - - (%tech.div.model;)      >
<!ATTLIST address.modes
    --      Class or type of data in division --
    div.class      (%classes;)      "detail.spec"
    --      Common Division Attributes      --
    %div.att;      >
```

Element: Administrative Information

Tag: <admin.info>

Definition:

Information about a document that can be used to differentiate one document from another.

Remarks:

Administrative Information contains information about a single datasheet, such as its <title>, print date, and literature ordering number. May contain such elements as Generic Product ID (part number), Product Description, date, product status, manufacturer, etc.

Attribute(s):

<u>Description (Attribute Name)</u>	<u>Default</u>
id "id"	REQUIRED

Content:

- Document Information <doc.info>
Enterprise Information <enterprise.info>
Author Information <author.info>
Product ID Information <pid.info>

SGML Model:

```
<!ELEMENT admin.info - - (doc.info,enterprise.info+,  
author.info?,pid.info?) >  
<!ATTLIST admin.info  
-- Shared Attributes (includes ID) --  
%data.att; >
```

Tagged Example:

```
<!DOCTYPE PCIS.APPNOTE SYSTEM "pappnote.dtd">  
<PCIS.APPNOTE ID="s1"><ADMIN.INFO ID="s2"><DOC.INFO ID="a100">  
<DOC.TITLE ID="a101">  
<TITLE.DESCRPTIVE ID="a102">Bipolar PROM Devices in Plastic Leaded Chip  
Carriers (PLCC)</TITLE.DESCRPTIVE></DOC.TITLE></DOC.INFO>  
<ENTERPRISE.INFO ID="a103"><ENTERPRISE ID="a261"><NAME ID="a262">National  
Semiconductor</NAME></ENTERPRISE>  
<ENTERPRISE.ISBN ID="a263">Not available.</ENTERPRISE.ISBN></ENTER-  
PRISE.INFO>  
</ADMIN.INFO>
```

Element: Alternative Descriptive Title

Tag: <alt.descriptive.title>

Definition:

An alternative or abbreviated name of a product, used in addition to the Product Description.

Remarks:

There are two models of document titles. Some documents simply contain Titles <title>s, which are composed of undifferentiated text. Other documents, often including datasheets, have composite titles which incorporate the number and description of the product into the title. These composite titles are called Document Titles <doc.title>s.

A Document Title is composed of a Product Name Title <prod.name.title> (which often contains the part number or numbers as a Generic Product ID) and a Descriptive Title <title.descriptive> (which contains a description of the product or products). For example,<doc.title>LM1894 Dynamic Noise Reduction System DNR</doc.title> contains <prod.name.title>LM1894</prod.name.title>, and <title.descriptive>Dynamic Noise Reduction System DNR</title.descriptive>.

Attribute(s):	
<u>Description (Attribute Name)</u>	<u>Default</u>
alternative title reason "alt.use"	IMPLIED
id "id"	REQUIRED

Content:

Characters (letters, numbers, punctuation) with elements mixed in as needed from the Phrase pool

SGML Model:

```
<!ELEMENT alt.descriptive.title
    - -    (#PCDATA | %all.phrase;)*>
<!ATTLIST alt.descriptive.title
    --      Reason for Alternative Title    --
    alt.use  CDATA                          #IMPLIED
    --      Shared Attributes (includes ID) --
    %data.att;                             >
```

Element: Alternative Product ID

Tag: <pid.alt>

Definition:

 An alternative version of a product name or ID; such as a customer's name for a product.

Attribute(s):

<u>Description (Attribute Name)</u>	<u>Default</u>
id "id"	REQUIRED
reason for alias "pid.alt.use"	IMPLIED
specific product id "pid.specific"	IMPLIED

Content:

 Product ID Segment <pid.seg>

SGML Model:

```
<!ELEMENT pid.alt      - -      (pid.seg+)      >
<!ATTLIST pid.alt      --      Reason for alias      --
      pid.alt.use      CDATA      #IMPLIED
      --      Reference to Specific Product ID --
      pid.specific      IDREF      #IMPLIED
      --      Shared Attributes (includes ID) --
      %data.att;      >
```