The IEEEconf class*

Scott Pakin scott+iecnf@pakin.org

January 15, 2007

1 Introduction

The IEEEconf class implements the formatting dictated by the IEEE Computer Society Press for conference proceedings. IEEEconf.cls replaces latex8.sty and is compatible with any BibTEX style, not just latex8.bst. The goal was to produce a more faithful implementation of the formatting rules and to do so with cleaner IATEX code than that provided by the latex8.* files:

- IEEEconf is written as a class, which makes more sense than implementing it as a style file.
- IEEEconf uses the geometry package to construct the page layout rather than setting LATEX registers directly.
- IEEEconf selects fonts using the IATEX 2_{ε} font commands instead of TEX primitives. This lets an author redefine \rmdefault, \sfdefault, and \ttdefault and have those changes honored by IEEEconf.
- IEEEconf uses the titlesec package to redefine \section, \subsection, and \subsubsection as dictated by the guidelines. latex8 required that authors use \Section, which internally called \section then backspaced to add the required period after the section number. Yuck!
- IEEEconf changes bibliography formatting by redefining the thebibliography environment instead of by requiring the author to use a particular BibTeX style file.

Note that IEEEconf is intended specifically for preparing manuscripts for IEEE Computer Society Press conference proceedings. Most other IEEE publications—including other IEEE conference proceedings—specify different formatting requirements. Unless you were instructed explicitly to follow IEEE Computer Society Press's conference-proceedings guidelines, you may find the IEEEtran package more appropriate than IEEEconf.

^{*}This document corresponds to $\mathsf{IEEE}\mathsf{conf}\ v1.3b$, dated 2007/01/15.

Caveats First, as of this writing, IEEEconf has been neither validated nor endorsed by the IEEE Computer Society Press. Second, some of the IEEE Computer Society Press's guidelines are outside of IEEEconf's scope. See Section 3 for details. Third, the IEEE Computer Society Press occasionally changes their guidelines; IEEEconf v1.3b implements the guidelines which were current on 2007/01/15. In fact, the IEEE Computer Society Press Web site provides two sets of guidelines:

- ftp://pubftp.computer.org/press/outgoing/proceedings/instruct.pdf. IEEEconf relies on this document for its primary set of guidelines.
- http://www.computer.org/portal/site/ieeecs/index.jsp?pageID=ieeecs_level1&path=ieeecs/publications/cps&file=cps_forms.xml&xsl=generic.xsl. This Web page contains almost the same contents as the preceding PDF file except that the "Footnotes" section has nothing to do with footnotes but rather with column formatting. Footnote guidance is taken from the other set of guidelines.
- ftp://pubftp.computer.org/press/outgoing/proceedings/INSTRUCT.HTM and ftp://pubftp.computer.org/press/outgoing/proceedings/instruct.txt. This document provides guidance on footnote formatting. However, it contradicts the previous documents by specifying that paragraphs be indented by 1 pica while the preceding document says to indent paragraphs by 1/4 inch (1.5 picas). It limits the abstract to 3 inches (7.62 cm) while the previous document dictates a 150-word limit. IEEEconf follows the previous document in the case of any conflict.

This document contains an additional section about illustrations which says not to use color figures unless instructed to do so and presents a few prehistoric guidelines about penciling in page numbers and how to use rub-on symbols.

2 Usage

\documentclass H

Begin your document by loading the IEEEconf class:

\documentclass{IEEEconf}

Although IEEEconf is derived from article and accepts the same class options, you should not, in general, pass any extra options to \documentclass. IEEEconf will automatically set two-column mode and a 10 pt. Times Roman font. As of version 1.3a, IEEEconf honors the user's default paper size because the IEEE Computer Society Press now allows both U.S. Letter- and A4-sized paper. The paper size can be overridden by the letterpaper or a4paper class options if a conference dictates a particular paper size.

\title

The \title command behaves identically to the one in the article class. Just remember to follow what the guidelines say about capitalization of words in the title.

\author affiliation \email

The guidelines specify different formatting for an author's name and for an author's affiliation and e-mail address. For convenience, IEEEconf provides an affiliation environment for typesetting affiliations and an \email macro for typesetting e-mail addresses. The following examples show how to format an author list:

```
% Individual author
\author{%
  Amy Author \\
  \begin{affiliation}
    Fancy Text Processing Department \\
    University of Llanfairpwllgwyngyllgogerychwyrndrobwllllantysiliogogogoch
  \end{affiliation} \\
  \email{author@llanfairPG.ac.uk}
}
% Multiple authors
\author{%
  Ray Writer \\
  \begin{affiliation}
    International Giant Mega-Corporation, Inc.
  \end{affiliation} \\
  \email{writer@giantmegaco.com}
  Kim Composer \\
  \begin{affiliation}
    Department of Reading, 'Riting, and 'Rithmetic
    \LaTeX{} State University
  \end{affiliation} \\
  \email{composer@latexstate.edu}
}
```

There is not currently any special support in IEEEconf for typesetting multiple affiliations per author.

\date \callout The date macro is implemented but doesn't actually typeset anything.

A callout is a piece of text referring to a figure or table. When the IEEE Computer Society Press re-typesets a document they supposedly want the "See Figure..." and "See Table..." text to stand out to help the typesetter ensure that figures and tables are placed as close as possible to their references. The \callout macro simply typesets its argument in 9-point Helvetica as per the guidelines and is typically used as follows: "For details, see \callout{Figure^\ref{myfigure}}". My understanding is that \callout should be used only when a paper will be re-typeset and not when producing camera-ready copy.

\dobeforekey

The IEEE Computer Society Press guidelines say, "If the last page of your paper is only partially filled, arrange the columns so that they are evenly balanced if possible, rather than having one long column." This is a fairly tricky

requirement in the general case for LaTeX 2_{ε} . Because the last page typically contains only references, IEEEconf provides a simple command, \dobeforekey, to help with that specific case. \dobeforekey takes two arguments: a bibliography key (i.e., a string passed to the \cite command) and a command to execute before typesetting the corresponding bibliography entry. When preparing the final version of your paper, put "\dobeforekey{\langle key}\rangle\tau\rangle\tau\rangle}" anywhere before the \bibliography command and use trial-and-error to find the key which best balances the columns on the last page of the paper.

Reference lists The IEEE Computer Society Press provides little guidance about typesetting reference lists. Apparently, the author is granted some flexibility. IEEEconf uses the specified font but leaves the rest of the formatting decisions to the author's chosen bibliography style. As the IEEE Computer Society Press's two sample references both use abbreviated author names, it's probably best to use \bibliographystyle{abbrv} when including a BibTeX bibliography. IEEEconf also supports the \thebibliography environment for authors who prefer to typeset their reference lists manually.

\extrareflistcode

Previous versions of the IEEE Computer Society Press guidelines stated that bibliographic references must be single-spaced and that's how IEEEconf formats the references list. The current guidelines say nothing about inter-reference spacing but their two sample references are in fact separated by a blank line. To provide the author with both alternatives, IEEEconf provides a "hook" macro called \extrareflistcode which enables one to alter the line spacing—or any other aspect of reference-list spacing.

As in most $IATEX 2\varepsilon$ classes, references are typeset within a IATEX list environment. The \extrareflistcode macro specifies extra code to execute as part of the second argument to \begin{list} when typesetting the document's References section. \extrareflistcode is initially empty but can be redefined by the author with \renewcommand. For example, the following code instructs IEEEconf to insert a blank line between entries in the references list:

\renewcommand{\extrareflistcode}{\setlength{\itemsep}{\baselineskip}}

3 Limitations

There are some requirements in the Computer Society's guidelines that IEEEconf is unable to enforce:

- "All manuscripts must be in English."
- "Capitalize the first letter of nouns, pronouns, verbs, adjectives, and adverbs; do not capitalize articles, coordinate conjunctions, or prepositions (unless the title begins with such a word)."

¹latex8.bst is in fact identical to abbrv.bst except that it injects "\setlength{\itemsep} {-1ex}\small" into its generated thebibliography environment.

- "Avoid the use of academic degrees and society affiliations."
- "Avoid using bit-mapped fonts if possible. True-Type 1 fonts are preferred."
- "Use footnotes sparingly (or not at all!)". The guidelines do specify how to format footnotes if you're desperate and IEEEconf honors the those requirements.
- "Where appropriate, include the name(s) of editors of referenced books."

Furthermore, there are also some requirements the IEEEconf does not currently implement:

- "The abstract is to be... up to 150 words in length." IEEEconf currently allows abstracts of any length.
- In the author list, "[m]ultiple authors may be shown in a two- or threecolumn format". Like article, IEEEconf packs as many authors as possible onto a line.
- "Initially capitalize only the first word of each figure caption and table title ... Figure captions are to be centered below the figures. Table titles are to be centered above the tables." Consider using the topcapt package to help with this captioning requirement.
- "If the last page of your paper is only partially filled, arrange the columns so that they are evenly balanced if possible, rather than having one long column." Consider using either IEEEconf's \doafterkey macro or the balance package to help with this formatting requirement.

Some of the above shortcomings may be fixed in a future release of IEEEconf if I figure out a good way to do so.

Also note that currently, only $8\frac{1}{2} \times 11''$ proceedings are supported, not $6 \times 9''$ proceedings.

4 Implementation

This section contains the complete source code to IEEEconf. If you're not a LATEX hacker you probably won't find it particularly interesting or useful. However, if you're comfortable reading TEX and LATEX code, you can see exactly what IEEEconf is doing and how.

4.1 Initialization

For simplicity, we'll derive everything from the standard article class but force the twocolumn and 10pt options.

- 1 \PassOptionsToClass{twocolumn,10pt}{article}
- 3 \ProcessOptions\relax
- 4 \LoadClass{article}

```
\ieee@old@maketitle The guidelines say not to paginate.

5 \let\ieee@old@maketitle=\maketitle
6 \renewcommand{\maketitle}{%
7 \ieee@old@maketitle
8 \thispagestyle{empty}%
9 }
```

"All paragraphs should be indented 1/4 inch (approximately $0.5\,\mathrm{cm}$)." 11 \setlength{\parindent}{0.25in}

4.2 Page layout

10 \pagestyle{empty}

Define the page layout as per the following instructions:

All printed material, including text, illustrations, and charts, must be kept within a print area of 6-1/2 inches $(16.51\,\mathrm{cm})$ wide by 8-7/8 inches $(22.51\,\mathrm{cm})$ high. Do not write or print anything outside the print area. All text must be in a two-column format. Columns are to be 3-1/16 inches $(7.85\,\mathrm{cm})$ wide, with a 3/8 inch $(0.81\,\mathrm{cm})$ space between them. Text must be fully justified.

We set the top margin to 1 inch and let the bottom margin define itself based on the top margin and the text height as per the following instructions:

The second and following pages should begin 1.0 inch $(2.54 \,\mathrm{cm})$ from the top edge. On all pages, the bottom margin should be 1-1/8 inches $(2.86 \,\mathrm{cm})$ from the bottom edge of the page for 8.5×11 -inch paper; for A4 paper, approximately 1-5/8 inches $(4.13 \,\mathrm{cm})$ from the bottom edge of the page.

```
12 \RequirePackage[%
13    noheadfoot,
14    textwidth=6.5in,
15    textheight=8.875in,
16    tmargin=1in
17 ] {geometry}
18 \setlength{\columnsep}{0.375in}
```

4.3 Font selection

The guidelines specify Times (or similar) as the default font and Helvetica as the sans-serif font. While we're at it, we specify Courier as the fixed-width font.

```
19 \RequirePackage{mathptmx}
20 \RequirePackage{helvet}
21 \RequirePackage{courier}
```

Next, we define commands to set the fonts we'll need later in this file.

```
\ieee@times@xiv@bold Set Times 14 pt. bold.
                        22 \newcommand{\ieee@times@xiv@bold}{%
                             \rmfamily\bfseries\upshape\fontsize{14}{16}\selectfont}
 \ieee@times@xii@bold Set Times 12 pt. bold.
                        24 \newcommand{\ieee@times@xii@bold}{%
                            \rmfamily\bfseries\upshape\fontsize{12}{14}\selectfont}
  \ieee@times@xi@bold Set Times 11 pt. bold.
                        26 \newcommand{\ieee@times@xi@bold}{%
                             \rmfamily\bfseries\upshape\fontsize{11}{13}\selectfont}
    \ieee@times@x@bold Set Times 10 pt. bold.
                        28 \newcommand{\ieee@times@x@bold}{%
                             \rmfamily\bfseries\upshape\fontsize{10}{12}\selectfont}
\ieee@times@xii@roman Set Times 12 pt. roman.
                        30 \newcommand{\ieee@times@xii@roman}{%
                             \rmfamily\mdseries\upshape\fontsize{12}{14}\selectfont}
\ieee@times@xii@italic Set Times 12 pt. italic.
                        32 \newcommand{\ieee@times@xii@italic}{%
                             \rmfamily\mdseries\itshape\fontsize{12}{14}\selectfont}
 \ieee@times@ix@roman Set Times 9 pt. roman.
                        34 \newcommand{\ieee@times@ix@roman}{%
                             \rmfamily\mdseries\upshape\fontsize{9}{11}\selectfont}
   \ieee@helv@ix@roman Set Helvetica 9 pt. roman.
                        {\tt 36 \ \ lee0helv@ix@roman} \ {\tt \%}
                             \sffamily\mdseries\upshape\fontsize{9}{11}\selectfont}
     \ieee@helv@x@bold Set Helvetica 10 pt. bold.
                        38 \newcommand{\ieee@helv@x@bold}{%
                             \sffamily\bfseries\upshape\fontsize{10}{12}\selectfont}
                              Title formatting
                        4.4
                        We use the array package to help center the text within tabular "p" columns.
                        40 \RequirePackage{array}
                        \Cmaketitle sets this \langle dimen \rangle to the width of the widest author block.
    \ieee@author@width
                        41 \newlength{\ieee@author@width}
```

\and Redefine the \and macro used in titles to force some blank space above each author block. (Other than the \rule line, this version of \and is identical to the one in ltsect.dtx.)

```
42 \def\and{%
43 \end{tabular}%
44 \hskip 1em \@plus 0.17fil%
45 \rule{0pt}{1.5\baselineskip}%
46 \begin{tabular}[t]{@{}>{\centering}p{\ieee@author@width}@{}}%
47 }
```

\@maketitle The guidelines say that the "title (on the first page) should begin 1-3/8 inches (3.49 cm) from the top edge of the page, centered, and in Times 14-point, boldface type... Leave two blank lines after the title."

```
48 \def\@maketitle{%
49
    \newpage
50
    \null
    \vskip 0.375in%
51
    \begin{center}%
52
      \let\footnote=\thanks
53
      {\ieee@times@xiv@bold\@title\par}%
54
      \vskip 24pt
55
      \ieee@times@xii@roman
56
```

Set \ieee@author@width to the width of the widest author block.

```
57 \settowidth{\ieee@author@width}{%
58 \let\and=\crcr
```

We temporarily let-bind both \thanks and \footnote to \@gobble. If we didn't, IEEEconf would output each footnote twice: once when calculating the width of the author blocks and once when typesetting them. Note that we use \@gobble instead of, say, \footnotemark because \@ieee@old@maketitle (a.k.a. the article class's \maketitle macro) places footnote markers within an \rlap so they occupy no horizontal space.

```
59 \let\thanks=\@gobble
60 \let\footnote=\@gobble
61 \begin{tabular}[t]{@{}c@{}}%
62 \@author
63 \end{tabular}%
64 }%
```

70 }

Typeset all author blocks with columns exactly of width \ieee@author@width.

```
begin{tabular}[t]{@{}>{\centering}p{\ieee@author@width}@{}}%
begin{tabular}{\centering}p{\ieee@author@width}@{}}%
begin{tabular}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\centering}p{\ieee}{\
```

affiliation Affiliations are supposed to be in Times 12 pt. italic type. We define an environment to help out with that.

```
71 \newenvironment{affiliation}{%
72 \ieee@times@xii@italic
73 \begin{tabular}[t]{c}%
74 }{%
75 \end{tabular}%
76 }
```

email E-mail addresses are supposed to be in Times 12 pt. italic type. We define a macro to help out with that.

```
77 \newcommand*{\email}[1]{%
78 {\ieee@times@xii@italic#1}}
```

4.5 Abstract

abstract The guidelines have a lot to say about formatting abstracts:

The abstract is to be in fully-justified italicized text, at the top of the left-hand column as it is here, below the author information. Use the word "Abstract" as the title, in 12-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 10-point, single-spaced type, and up to 150 words in length. Leave two blank lines after the abstract, then begin the main text.

Most of the following code was taken verbatim from classes.dtx.

```
79 \if@titlepage
     \renewenvironment{abstract}{%
81
         \titlepage
         \null\vfil
82
         \@beginparpenalty\@lowpenalty
83
         \begin{center}%
84
           \bfseries \abstractname
85
           \@endparpenalty\@M
86
87
         \end{center}}%
        {\par\vfil\null\endtitlepage}
88
89 \else
     \renewenvironment{abstract}{%
90
         \if@twocolumn
91
           \begin{center}%
92
93
             \ieee@times@xii@bold \abstractname
           \end{center}
           \itshape
95
         \else
96
           \small
97
           \begin{center}%
98
             {\bfseries \abstractname\vspace{-.5em}\vspace{\z@}}%
99
           \end{center}%
100
```

4.6 Figures and tables

Format figure and table captions as follows:

Figure and table captions should be 10-point Helvetica (or a similar sans-serif font), boldface. Callouts should be 9-point Helvetica, non-boldface. Initially capitalize only the first word of each figure caption and table title. Figures and tables must be numbered separately. For example: "Figure 1. Database contexts", "Table 1. Input data". Figure captions are to be below the figures. Table titles are to be centered above the tables.

Currently, the author is responsible for putting captions above tables and below figures. The topcapt package is useful for ensuring proper spacing when captions are placed above a table.

\@makecaption

Modify \@makecaption to typeset everything in 10 pt. Helvetica and to put a period instead of a colon after the figure number. See the definition of \@makecaption in classes.dtx for additional commentary.

```
109 \long\def\@makecaption#1#2{%
     \vskip\abovecaptionskip
111
     \sbox\@tempboxa{\ieee@helv@x@bold #1. #2}%
     \ifdim \wd\@tempboxa >\hsize
112
       \ieee@helv@x@bold #1. #2\par
113
114
       \global \@minipagefalse
115
       \hb@xt@\hsize{\hfil\box\@tempboxa\hfil}%
116
117
     \vskip\belowcaptionskip}
118
```

\callout

When the IEEE Computer Society Press re-typesets a document they supposedly want the "See Figure" and "See Table" callouts to stand out to help the typesetter ensure that figures and tables are placed as close as possible to their callouts. The \callout macro simply typesets its argument in 9-point Helvetica as per the IEEE Computer Society Press guidelines.

```
119 \DeclareRobustCommand{\callout}[1]{%
120 {\ieee@helv@ix@roman#1}%
121 }
```

4.7 Section headers

The titlesec package makes it easy to modify section headers.

```
122 \RequirePackage{titlesec}
```

Format sections as follows:

For example, "1. Introduction", should be Times 12-point boldface, initially capitalized, flush left, with one blank line before, and one blank line after. Use a period (".") after the Arabic heading number, not a colon.

```
\label{lem:condition} $$124 \quad {}\relax $$125 \to {0.5em}_{1.2pt}_{1.2pt}_{1.2pt}$
```

Format subsections as follows:

As in this heading, they should be Times 11-point boldface, initially capitalized, flush left, with one blank line before, and one after.

```
\label{lem:condition} $$126 \times {\subsection}{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}_{\subsection}
```

Format subsubsections as follows:

Third-order headings, as in this paragraph, are discouraged. However, if you must use them, use 10-point Times, boldface, initially capitalized, flush left, preceded by one blank line, followed by a period and your text on the same line.

```
129 \titleformat{\subsubsection}[runin]{\ieee@times@x@bold}%
130 {\thesubsubsection.}{0.5em}{}[.]
131 \titlespacing{\subsubsection}{0pt}{10pt}{0.5em}
```

4.8 References

thebibliography

In order to make IEEEconf play nicely with the tocbibind package we need to separate the code that outputs the word "References" (or whatever \refname is defined as) from the code that typesets the bibliography in a list. Hence, our thebibliography definition is rather short.

```
132 \renewenvironment{thebibliography}[1]{%
133  \section*{\refname}%
134  \@mkboth{\MakeUppercase\refname}{\MakeUppercase\refname}%
135  \begin{ieee@thebibitemlist}{#1}%
136 }{%
137  \end{ieee@thebibitemlist}%
138 }
```

ieee@thebibitemlist

The IEEE guidelines provide very little guidance when it comes to formatting a bibliography. All they insist upon is that it be typeset in 9 pt. Times and use square brackets. The following is almost identical to the definition of thebibliography in classes.dtx but sets the appropriate font size and—as a courtesy to authors struggling to meet page-length requirements—eliminates blank lines between entries. The user can reinstate blank lines by redefining the \extracellistcode hook.

```
139 \newenvironment{ieee@thebibitemlist}[1]
140
        {\list{\@biblabel{\@arabic\c@enumiv}}%
141
              {\ieee@times@ix@roman
                \setlength{\itemsep}{Opt}%
142
143
                \setlength{\parsep}{0pt}%
144
                \settowidth\labelwidth{\@biblabel{#1}}%
145
                \leftmargin\labelwidth
146
                \advance\leftmargin\labelsep
147
                \@openbib@code
                \usecounter{enumiv}%
148
                \let\p@enumiv\@empty
149
                \renewcommand\theenumiv{\@arabic\c@enumiv}%
150
                \extrareflistcode}%
151
152
         \sloppy
         \clubpenalty4000
153
154
         \@clubpenalty \clubpenalty
         \widowpenalty4000%
155
156
         \sfcode'\.\@m}
157
        {\def\@noitemerr
          {\@latex@warning{Empty 'thebibliography' environment}}%
158
         \endlist}
159
```

At the beginning of the document, after the author has finished loading packages, we check to see if the tocbibind package was loaded. If it was, we replace its thebibitemlist environment with our ieee@thebibitemlist environment.

```
160 \AtBeginDocument{%
161 \@ifpackageloaded{tocbibind}{%
162 \let\thebibitemlist=\ieee@thebibitemlist
163 \let\endthebibitemlist=\endieee@thebibitemlist
164 }%
165 {}%
166 }
```

\ieee@pre@bibitem@key \ieee@pre@bibitem@cmd

The commands defined by the user in \ieee@pre@bibitem@cmd are executed before IEEEconf typesets a bibliographic entry with key \ieee@pre@bibitem@key.

```
167 \newcommand{\ieee@pre@bibitem@key}{IEEEconf} 168 \newcommand{\ieee@pre@bibitem@cmd}{}
```

\dobeforekey Store a command to execute before a given bibliography key.

```
169 \newcommand{\dobeforekey}[2]{%
170 \def\ieee@pre@bibitem@key{#1}%
```

```
\def\ieee@pre@bibitem@cmd{#2}%
171
172 }
```

\ieeeColdCbibitem Redefine \bibitem to insert \ieeeCpreCbibitemCcmd before a citation or refer-\bibitem ence label designated by the user.

```
173 \let\ieee@old@bibitem=\bibitem
174 \renewcommand{\bibitem}[2][]{%
     \def\ieee@biblabel{#1}%
175
     \def\ieee@bibkey{#2}%
176
     \ifx\ieee@bibkey\ieee@pre@bibitem@key
177
       \ieee@pre@bibitem@cmd
     \ifx\ieee@biblabel\@empty
180
       \def\next{\ieee@old@bibitem{#2}}%
181
182
       \def\next{\ieee@old@bibitem[#1]{#2}}%
183
     \fi
184
185
     \next
186 }
```

\extrareflistcode

Provide a hook for the user to inject arbitrary code into the list environment's spacing argument (i.e., the second argument to \begin{list}) when producing a reference list.

187 \newcommand{\extrareflistcode}{}

License 5

Copyright © 2007 by Scott Pakin

This file may be distributed and/or modified under the conditions of the LATEX Project Public License, either version 1.3c of this license or (at your option) any later version. The latest version of this license is in:

```
http://www.latex-project.org/lppl.txt
```

and version 1.3c or later is part of all distributions of LATEX version 2006/05/20 or later.

Change History

```
v1.0
                                                    gestions . . . . . . . . . . . . . . . . . 1
   General: Initial version . . . . . . . 1 v1.0b
v1.0a
                                                 General: Corrected a formatting
   General: Clarified the documenta-
                                                    problem with \subsubsection
       tion as per Ming Kin Lai's sug-
                                                    identified by Ben Ochoa. . . . . 11
```

v1.1	v1.3
\ieee@helv@x@bold: Converted figure/table captions from roman to boldface. Thanks to Thomas J. Hacker for pointing out the formatting violation	General: Added a paragraph about formatting reference lists as per Rennie deGraaf's suggestion 1 Updated the page layout to match the new IEEE Computer Society Press specifications 6 Updated the paragraph indentation to match the new IEEE Computer Society Press specifications 6 \callout: Introduced this macro. Thanks to Ming Kin Lai for
version of IEEEconf 8 \and: Introduced this macro in or-	finding out what a "callout" is. 10 \dobeforekey: Introduced this
der to insert blank space between author blocks 8 v1.2a	macro
\@maketitle: Fixed a bug which caused \thanks and \footnote to produce duplicate footnotes.	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
Thanks to M. Rasit Eskicioglu for reporting the duplicate-footnote problem 8	\@maketitle: Corrected the spacing between lines of multiline titles

Index

Numbers written in italic refer to the page where the corresponding entry is described; numbers underlined refer to the code line of the definition; numbers in roman refer to the code lines where the entry is used.

${f Symbols}$	array (package) 7	\DeclareRobustCommand
\@author 62, 66	article (package) 8	119
\@biblabel 140, 144	\AtBeginDocument 160	\dobeforekey $3, \underline{169}$
\@gobble $\dots \dots 59, 60$	\author 3	$\documentclass \dots 2$
$\c \c \$		
$\c \c \$	В	${f E}$
\@makecaption $\underline{109}$	balance (package) \dots 5	\email $3, 77, \underline{77}$
\@maketitle $\underline{48}$	$\begin{tabular}{ll} \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	environments:
\@title 54	\bibitem <u>173</u>	abstract \dots 79
		affiliation $3, \underline{71}$
A	\mathbf{C}	affiliation \dots $3, \underline{71}$ ieee@thebibitemlist
\abovecaptionskip . 110	\callout 3, <u>119</u>	ieee@thebibitemlist
\abovecaptionskip . 110 abstract (environ-	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	ieee@thebibitemlist
\abovecaptionskip . 110 abstract (environ-	\callout 3, <u>119</u>	ieee@thebibitemlist
\abovecaptionskip . 110 abstract (environ-	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	$ \begin{array}{ccc} \text{ieee@thebibitemlist} \\ & \dots & \underline{139} \\ \text{thebibliography} & \underline{132} \\ \end{array} $
\abovecaptionskip . 110 abstract (environment)	\callout 3 , $\underline{119}$ \columnsep 6	$\begin{tabular}{lllllllllllllllllllllllllllllllllll$
\abovecaptionskip . 110 abstract (environment)	\callout 3, <u>119</u> \columnsep 6 courier (package) 6	ieee@thebibitemlist $ \begin{array}{ccc} & 139 \\ & 132 \\ \\ \text{thebibliography} & 132 \\ \\ \text{extrareflistcode} & . \\ & & 4, 151, \underline{187} \\ \\ \text{\textbf{G}} \end{array} $

Н	IEEEconf (package)	\parindent 11
helvet (package) 6	. 1-5, 8, 11, 12, 14	\parsep 143
	IEEEtran (package) 1	\PassOptionsToClass
I	\if@titlepage 79	1, 2
\ieee@author@width .	\if@twocolumn 91, 103	
$\dots \underline{41}, 46, 57, 65$	\ifx 177, 180	${f R}$
\ieee@bibkey 176, 177	\itemsep 142	\RequirePackage
\ieee@biblabel 175, 180		. 12, 19–21, 40, 122
\ieee@helv@ix@roman	${f L}$	
36, 120	\labelsep 146	${f S}$
\ieee@helv@x@bold .	\labelwidth 144, 145	\section 123, 125, 133
38, 111, 113	latex8 (package) 1	\selectfont
\ieee@old@bibitem . 173	\leftmargin 145, 146	. 23, 25, 27, 29,
\ieee@old@maketitle . 5	\LoadClass 4	31, 33, 35, 37, 39
\ieee@pre@bibitem@cmd	2.4	\subsection 126, 128
167, 171, 178	M	\subsubsection 129, 131
\ieee@pre@bibitem@key	\maketitle $\dots \dots \underline{5}$	
1 167 , 170 , 177	\MakeUppercase 134	${f T}$
\ieee@thebibitemlist	mathptmx (package) 6	\thanks 53, 59
162	P	\thebibitemlist 162
ieee@thebibitemlist	packages:	thebibliography $(envi-$
(environment) 139	array 7	ronment) \dots 132
\ieee@times@ix@roman	article	\theenumiv 150
34, 141	balance 5	\thesection 123
\ieee@times@x@bold .	courier 6	\thesubsection 126
	geometry 1	$\$ the subsubsection . 130
\ieee@times@xi@bold	helvet 6	\thispagestyle 8
$$ $$	IEEEconf	\title 2
\ieee@times@xii@bold	. 1-5, 8, 11, 12, 14	\titleformat
$\dots 24, 93, 123$	IEEEtran 1	\dots 123, 126, 129
\ieee@times@xii@italic	latex8 1	\titlepage 81
32, 72, 78	mathptmx 6	titlesec (package) 1, 11
\ieee@times@xii@roman	titlesec 1, 11	\titlespacing
	tocbibind 11, 12	\dots 125, 128, 131
$\begin{array}{ccc} & \dots & \underline{30}, 56 \\ \text{\ \ } \\ \text{\ } \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ $		125, 128, 131 tocbibind (package) 11, 12 topcapt (package) . 5, 10