

# The `boundbox` package

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## 1 Introduction

The package is used to calculate textbox coordinates on the page. I guess that the most useable part of this package can be internal macro `\roundtexdim` for rounding pt values to int numbers.

## 2 Usage

Just add package to the tex file as: `\usepackage{boundbox}`.  
Rounding tex dimension values:

```
\newdimen\testdim
\testdim=1in \the\testdim -> 72.26999pt

\roundtexdim{\testdim}\foo \number\foo->72

\roundtexdim floor{\testdim}\foo \number\foo->72

\roundtexdim ceil{\testdim}\foo \number\foo->73
```

## 3 Implementation

The package contains two options:

`<nofoot>` – do not include foot to the bbox.  
`<nospec>` – do not write specials with bbox info.

```
1 %
2 %%
3 \newif\if@withfoot \@withfoottrue
4 \newif\if@output@bbox@special \@output@bbox@specialtrue
5 \DeclareOption{nofoot}{\global\@withfootfalse}
6 \DeclareOption{nospec}{\global\@output@bbox@specialfalse}
7 \ProcessOptions
8 %%
9 %
```

Definitions of special prefixes.

```

10 \def\special@bbox@odd@prefix{mt:TeXBox:odd}
11 \def\special@bbox@even@prefix{mt:TeXBox:even}

\roundtexdim {\langle round type \rangle}{\langle tex dimension \rangle}{\langle command \rangle}
      \langle tex dimension \rangle value in pt rounded with \langle round type \rangle is defined as \langle command \rangle.

12 %
13 %%
14 \def\roundtexdim#1#{\round@tex@dim{#1}}
15 \def\round@tex@dim#1#2#3{%
16   \expandafter\expandafter\csname get@#1pt@data\endcsname\the#2\to#3\relax
17 }

```

Internal macro for calculating rounded value to the floor.

```

\get@floor@pt@data

18 \def\get@floor@pt@data#1.#2#3\to#4{%
19   \bgroup
20     \@tempcnta=#1\relax
21     \xdef#4{\the\@tempcnta}%
22   \egroup
23 }

```

Internal macro for calculating rounded value by first number after point.

```

\get@round@pt@data

24 \def\get@round@pt@data#1.#2#3\to#4{%
25   \bgroup
26     \@tempcnta=#1\relax
27     \ifnum#2>4\relax
28       \advance\@tempcnta by\@ne
29     \fi
30     \xdef#4{\the\@tempcnta}%
31   \egroup
32 }
33 \let\get@@pt@data\get@round@pt@data

```

Internal macro for calculating rounded value to the ceiling.

```

\get@ceil@pt@data

34 \def\get@ceil@pt@data#1.#2#3\to#4{%
35   \bgroup
36     \@tempcnta=#1\relax
37     \afterassignment\@gobbletwo
38     \@tempcntb=#2#3\relax
39     \ifnum\@tempcntb>0\relax
40       \advance\@tempcnta by\@ne
41     \fi
42     \xdef#4{\the\@tempcnta}%

```

```

43 \egroup
44 }

```

`\@calculate@bbox` Internal macro `\@calculate@bbox` calculates TeX box dimensions:

- `\bbox@odd@top@pt` and `\bbox@even@top@pt`: distance in rounded “floor” points from the top of paper to the top of TeX box (including head) (the same for odd and even pages);
- `\bbox@odd@left@pt` and `\bbox@even@left@pt`: distance in rounded “floor” points from the left side of paper to the left side of TeX box for odd and even pages;
- `\bbox@odd@right@pt` and `\bbox@even@right@pt`: distance in rounded “ceil” points from the left side of paper to the right side of TeX box accordingly for odd and even pages;
- `\bbox@odd@bottom@pt` and `\bbox@even@bottom@pt`: distance in rounded “ceil” points from the top of paper to the bottom of TeX box (including foot by default; with option “nofoot” without foot) (the same for odd and even pages).

```

45 \def\@calculate@bbox{%
46   \bgroup
47   \@tempdima=1in\relax
48   \advance\@tempdima by\hoffset
49   \advance\@tempdima by\oddsidemargin
50   \roundtexdim floor{\@tempdima}\bbox@odd@left@pt
51   \advance\@tempdima\textwidth
52   \roundtexdim ceil{\@tempdima}\bbox@odd@right@pt
53   \@tempdima=1in\relax
54   \advance\@tempdima by\hoffset
55   \advance\@tempdima by\evensidemargin
56   \roundtexdim floor{\@tempdima}\bbox@even@left@pt
57   \advance\@tempdima\textwidth
58   \roundtexdim ceil{\@tempdima}\bbox@even@right@pt
59   \@tempdima=1in\relax
60   \advance\@tempdima by\voffset
61   \advance\@tempdima by\topmargin
62   \roundtexdim floor{\@tempdima}\bbox@odd@top@pt
63   \global\let\bbox@even@top@pt\bbox@odd@top@pt
64   \advance\@tempdima by\headheight
65   \advance\@tempdima by\headsep
66   \advance\@tempdima\textheight
67   \if@withfoot
68     \advance\@tempdima\footskip
69   \fi
70   \roundtexdim ceil{\@tempdima}\bbox@odd@bottom@pt
71   \global\let\bbox@even@bottom@pt\bbox@odd@bottom@pt
72 \egroup
73 }

```

Without package option *<nospec>* two specials are written to the output file. Prefix of particular special is defined by: `\special@bbox@odd@prefix` and `\special@bbox@even@prefix`.

```

74 %
75 %%
76 \AtBeginDocument{%
77   \@calculate@bbox
78   \if@output@bbox@special
79     \special{\special@bbox@odd@prefix\space
80               left=\csname bbox@odd@left@pt\endcsname\space
81               top=\csname bbox@odd@top@pt\endcsname\space
82               right=\csname bbox@odd@right@pt\endcsname\space
83               bottom=\csname bbox@odd@bottom@pt\endcsname
84             }%
85     \special{\special@bbox@even@prefix\space
86               left=\csname bbox@even@left@pt\endcsname\space
87               top=\csname bbox@even@top@pt\endcsname\space
88               right=\csname bbox@even@right@pt\endcsname\space
89               bottom=\csname bbox@even@bottom@pt\endcsname
90             }%
91   \fi
92 }
93 \endinput

```