The blowup package*

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Abstract

This package only defines the user-level macro `\blowUp`, which can be used to upscale or downscale all pages of a document. It is similar to the TEX primitive `\magnification` but more accurate and in a user-friendly manner. `\blowUp` may be useful for the creation of posters from a normal-sized document and for many kinds of fine adjustments of a ready typesetted document (e. g., minor changes of scaling and position of the pages).

Contents

1 Usage

Load the package after other packages that affect the paper size (e. g., geometry and hyperref). Then call the macro `\blowUp` before `\begin{document}` to scale the document.

`\usepackage{blowup}`
`\blowUp{`⟨*key=value*⟩`}`

key	value
target	The final paper size: `letter`, `legal`, `executive` or a paper size from the ISO/DIN paper series A, B, C, D (e. g., `a8`, `c7`,..., `b1`, `a0`) or a pair of dimensions in curly brackets (e. g., `paper={925mm,1225mm}`) or the letter 'x' followed by a scaling factor (e. g., `paper=x1.414213`).

*This document corresponds to blowup ?, dated ?.

origin — The paper size of the source document; no scaling to the target size.
`letter`, `legal`, `executive` or a paper size from the ISO/DIN paper series A, B, C, D (e. g., `a8`, `c7`,..., `b1`, `a0`) or a pair of dimensions in curly brackets (e. g., `paper={925mm,1225mm}`) or the letter 'x' followed by a scaling factor (e. g., `paper=x1.414213`).

landscape — Exchanges paperwidth and paperheight:
`true` (the same as no value) or `false`.

noscale — No scaling of the original paper size:
`true` (the same as no value) or `false`.

pos — Position of the page on the paper:
`left` or `right`, `inside` or `outside`, `top` or `bottom` (only the first letter is significant; default is centering), or a pair of dimensions in curly brackets which means the offset from the lower left or lower outside corner of the final paper. Only meaningful for `noscale=true` and up-scaled paper size.

onepage — Suppresses the second page and all following pages:
`true` (the same as no value) or `false`.
Useful for creating a one-side paper like a poster.

See also the example documents `blowup-ex?.tex`.

2 Required Packages

The blowup package requires the following packages: atbegshi, graphics, keyval, and typearea.

3 Implementation

1 ⟨*package⟩

Load some packages for utility macros.

```
2 \RequirePackage{atbegshi,keyval,graphics}
3 \@ifpackageloaded{typearea}{}{%
4   \newcommand*\BL@save@dimen[1]{%
5     \@ifundefined{BL@#1}{%
6       \expandafter\newlength\csname BL@#1\endcsname}{}%
7     \csname BL@#1\endcsname\csname #1\endcsname
8     \g@addto@macro\BL@restore@dimens{%
9       \csname #1\endcsname\csname BL@#1\endcsname}%
10  }%
11  \newcommand*\BL@restore@dimens{}%
```

Some dimensions changed by typearea must be saved and restored.

```
  \BL@save@dimen{textwidth}%
  \BL@save@dimen{textheight}%
  \BL@save@dimen{evensidemargin}%
  \BL@save@dimen{oddsidemargin}%
  \BL@save@dimen{topmargin}%
  \BL@save@dimen{headheight}%
  \BL@save@dimen{headsep}%
  \BL@save@dimen{topskip}%
  \BL@save@dimen{footskip}%
  \BL@save@dimen{baselineskip}%
```

Prevent an error if `\l@addto@macro` is already defined.

```
  \let\l@addto@macro=\relax
  \RequirePackage{typearea}%
  \BL@restore@dimens
  \let\BL@save@dimen=\relax
  \let\BL@restore@dimens=\relax
}
\providecommand*\vb@xt@{\vbox to}
```

`\tPaperWidth` `\tPaperHeight` The size of the scaled pages.

```
\newlength\tPaperWidth  \tPaperWidth=\paperwidth
\newlength\tPaperHeight \tPaperHeight=\paperheight
```

`\oPaperWidth` `\oPaperHeight` The size of the original pages.

```
\newlength\oPaperWidth  \oPaperWidth=\z@
\newlength\oPaperHeight \oPaperHeight=\z@

\newcommand*\BL@resize[1]{#1}
```

`\BL@scalePage` Scales the output box to the dimension of the new paper size.

```
\newcommand*\BL@scalePage{%
  \setbox\AtBeginShipoutBox=\vbox{%
    \vskip1in\moveright1in\box\AtBeginShipoutBox}%
  \setbox\AtBeginShipoutBox=\hb@xt@\paperwidth{%
    \box\AtBeginShipoutBox\hss}%
  \setbox\AtBeginShipoutBox=\vb@xt@\paperheight{%
    \box\AtBeginShipoutBox\vss}%
  \ifBL@noscale\else
    \ifdim\oPaperWidth>\z@
      \setbox\AtBeginShipoutBox=\hbox{\resizebox{\oPaperWidth}{\oPaperHeight}%
        {\box\AtBeginShipoutBox}}%
    \else
      \def\BL@resize##1{\resizebox{\tPaperWidth}{!}{##1}}%
      \setbox\@tempboxa=\hbox{\BL@resize{\copy\AtBeginShipoutBox}}%
      \ifdim\ht\@tempboxa>\tPaperHeight
        \def\BL@resize##1{\resizebox{!}{\tPaperHeight}{##1}}%
      \fi
    \fi
  \fi
```

```
  \setbox\@tempboxa=\vb@xt@\tPaperHeight{%
    \kern\z@\BL@t
    \hb@xt@\tPaperWidth{\BL@l\BL@resize{\box\AtBeginShipoutBox}\BL@r}%
    \BL@b\kern\z@
  }%
  \setbox\AtBeginShipoutBox=\vbox{%
    \vskip-1in\moveright-1in\box\@tempboxa}%
}
\newcommand\BL@tempa{}
\newcommand\BL@tempb{}
\newcommand*\BL@strip@comma{}
\def\BL@strip@comma#1,{#1}
```

`\BL@is@dimen@pair` The parameter two will be executed if the first parameter is a comma-separated pair of two dimensions. If not the parameter three will be executed.

```
\newcommand*\BL@is@dimen@pair[1]{%
  \expandafter\BL@@is@dimen@pair#1,\@nil
}
\newcommand*\BL@@is@dimen@pair{}
\def\BL@@is@dimen@pair#1,#2\@nil{%
  \edef\BL@tempa{#1}\edef\BL@tempb{#2}%
  \@tempswafalse
  \ifx\BL@tempb\@empty\else
    \edef\BL@tempb{\expandafter\BL@strip@comma\BL@tempb}%
    \ifdimen{\BL@tempa}{%
      \ifdimen{\BL@tempb}{\@tempswatrue}{}%
    }{}%
  \fi
  \if@tempswa
    \expandafter\@firstoftwo
  \else
    \expandafter\@secondoftwo
  \fi
}
\newcommand*\BL@strip@x{}
\def\BL@strip@x#1x{#1}
```

`\BL@is@factor` The parameter two will be executed if the first parameter is the small letter x ('times') immediately followed by a number. If not the parameter three will be executed.

```
\newcommand*\BL@is@factor[1]{%
  \expandafter\BL@@is@factor#1x\@nil
}
\newcommand*\BL@@is@factor{}
\def\BL@@is@factor#1x#2\@nil{%
  \edef\BL@tempa{#2}%
  \@tempswafalse
  \ifx\BL@tempa\@empty\else
```

```
    \edef\BL@tempa{\expandafter\BL@strip@x\BL@tempa}%
    \ifdimen{\BL@tempa pt}{\@tempswatrue}{}%
  \fi
  \if@tempswa
    \expandafter\@firstoftwo
  \else
    \expandafter\@secondoftwo
  \fi
}
```

`\BL@getDimens` Sets the two dimen registers (`#2` and `#3`) according to parameter `#1`.

```
\newcommand*\BL@getDimens[3]{%
  \BL@is@dimen@pair{#1}{%
    \global#2=\BL@tempa\relax
    \global#3=\BL@tempb\relax
  }{%
    \BL@is@factor{#1}{%
      \global#2=\BL@tempa\paperwidth
      \global#3=\BL@tempa\paperheight
    }{%
      \begingroup
        \KOMAoptions{paper=portrait,paper=#1}%
        \global#2=\paperwidth
        \global#3=\paperheight
      \endgroup
    }%
  }%
}
```

The key-value definitions for `\blowUp`.

```
\define@key{BL@}{origin}{%
  \BL@getDimens{#1}{\oPaperWidth}{\oPaperHeight}%
}
\define@key{BL@}{target}{%
  \BL@getDimens{#1}{\tPaperWidth}{\tPaperHeight}%
}
\newif\ifBL@noscale \BL@noscalefalse
\define@key{BL@}{noscale}[true]{%
  \csname BL@noscale#1\endcsname
}
\newcommand*\BL@l{}
\newcommand*\BL@r{}
\newcommand*\BL@i{}
\newcommand*\BL@o{}
\newcommand*\BL@t{}
\newcommand*\BL@b{}
```

`\BL@setPos` Modify the macros `\BL@l`, `\BL@r` (`\BL@i`, `\BL@o`), `\BL@t`, and `\BL@b` for positioning the page on the paper.

```
\newcommand\BL@setPos[1]{%
  \def\BL@l{\hss}\def\BL@r{\hss}%
  \def\BL@o{\hss}\def\BL@i{\hss}%
  \def\BL@t{\vss}\def\BL@b{\vss}%
  \BL@is@dimen@pair{#1}{%
    \edef\BL@b{\vskip\BL@tempb}%
    \if@twoside
      \edef\BL@l{\noexpand\ifodd\value{page}%
        \hskip\BL@tempa\noexpand\else\hss\noexpand\fi}%
      \edef\BL@r{\noexpand\ifodd\value{page}%
        \hss\noexpand\else\hskip\BL@tempa\noexpand\fi}%
    \else
      \edef\BL@l{\hskip\BL@tempa}%
    \if
  }{%
    \@for\BL@tempa:=#1\do{%
```

Extract the first letter.

```
      \edef\BL@tempb{\expandafter\@car\BL@tempa\@nil}%
      \expandafter\let\csname BL@\BL@tempb \endcsname\relax
    }%
    \if@twoside
      \ifx\BL@i\relax
        \def\BL@r{\ifodd\value{page}\hss\else\relax\fi}%
        \def\BL@l{\ifodd\value{page}\relax\else\hss\fi}%
      \fi
      \ifx\BL@o\relax
        \def\BL@l{\ifodd\value{page}\hss\else\relax\fi}%
        \def\BL@r{\ifodd\value{page}\relax\else\hss\fi}%
      \fi
    \else
      \let\BL@l=\BL@o
      \let\BL@r=\BL@i
    \fi
  }%
}

\define@key{BL@}{pos}{%
  \BL@setPos{#1}%
}
\newif\ifBL@landscape \BL@landscapefalse
\define@key{BL@}{landscape}[true]{%
  \csname BL@landscape#1\endcsname
}
\newcommand*\BL@pageInit{}
\define@key{BL@}{onepage}[true]{%
  \csname if#1\endcsname
    \def\BL@pageInit{\gdef\shipout{\setbox\@tempboxa=}}%
  \fi
}
```

`\blowUp` The only user-level macro.

```
\newcommand*\blowUp[1]{%
  \setkeys{BL@}{#1}%
  \ifBL@landscape
    \@tempdima=\tPaperWidth
    \global\tPaperWidth=\tPaperHeight
    \global\tPaperHeight=\@tempdima
  \fi
  \AtBeginShipout{\BL@scalePage}%
  \gdef\blowUp##1{%
    \PackageWarning{blowup}{Only the first call of `\string\blowUp'
      \MessageBreak is effective}}%
}

\AtBeginShipout{\BL@pageInit}
\@onlypreamble\blowUp
\AtBeginDocument{%
  \BL@pagesize@specials{\tPaperWidth}{\tPaperHeight}%
}
```

`\BL@pagesize@specials` Write pagesize informations to the output file. Depends on TEX compiler or driver.

```
\RequirePackage{ifxetex,ifluatex,ifpdf,ifvtex}
\newcommand*\BL@pagesize@specials[2]{}
\ifluatex
  \PackageInfo{blowup}{Generating code for LuaTeX}%
  \@ifundefined{pagewidth}{%
    \def\BL@pagesize@specials#1#2{\pdfpagewidth=#1 \pdfpageheight=#2}%
  }{%
    \def\BL@pagesize@specials#1#2{\pagewidth=#1 \pageheight=#2}%
  }
\else
  \ifxetex
    \PackageInfo{blowup}{Generating code for XeTeX}%
    \def\BL@pagesize@specials#1#2{\@tempdima=#1 \@tempdimb=#2 %
      \AtBeginDvi{\special{papersize=\the\@tempdima,\the\@tempdimb}}%
      \pdfpagewidth=#1 \pdfpageheight=#2}%
  \else
    \ifvtex
      \PackageInfo{blowup}{Generating code for VTeX}%
      \def\BL@pagesize@specials#1#2{\mediawidth=#1 \mediaheight=#2}%
    \else
      \ifpdf
        \PackageInfo{blowup}{Generating code for pdfTeX}%
        \def\BL@pagesize@specials#1#2{\pdfpagewidth=#1 \pdfpageheight=#2}%
      \else
        \PackageInfo{blowup}{Generating code for dvips}%
        \def\BL@pagesize@specials#1#2{\@tempdima=#1 \@tempdimb=#2 %
          \AtBeginDvi{\special{papersize=\the\@tempdima,\the\@tempdimb}}}%
      \fi
    \fi
```

```
  \fi
\fi
```

⟨/package⟩