

The **blowup** package

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1 Introduction

This package only defines the user-level macro `\blowUp`, which can be used to scale all pages of a document up or down. It is similar to the \TeX primitive `\mag`, but more accurate and user-friendly. `\blowUp` can be useful for creating posters from a normal sized document and for many other types of fine-tuning of a finished document (e.g., minor scaling changes and position of the pages).

2 Usage

The only user macro is `\blowUp{⟨key=value⟩}`. Call it before `\begin{document}` to scale all pages of the document:

key	value
target	The final paper size: <code>letter</code> , <code>legal</code> , <code>executive</code> or a paper size from the ISO/DIN paper series A, B, C, D (e.g., <code>a8</code> , <code>c7</code> ,..., <code>b1</code> , <code>a0</code>) or a pair of dimensions in curly brackets (e.g., <code>target={925mm,1225mm}</code>) or the letter 'x' followed by a scaling factor (e.g., <code>target=x1.414213</code>).
origin	Scaled size of the source document: <code>letter</code> , <code>legal</code> , <code>executive</code> or a paper size from the ISO/DIN paper series A, B, C, D (e.g., <code>a8</code> , <code>c7</code> ,..., <code>b1</code> , <code>a0</code>) or a pair of dimensions in curly brackets (e.g., <code>origin={925mm,1225mm}</code>) or the letter 'x' followed by a scaling factor (e.g., <code>origin=x1.414213</code>).
landscape	Exchanges paperwidth and paperheight: <code>true</code> (the same as no value) or <code>false</code> .
noscale	No scaling of the original paper size: <code>true</code> (the same as no value) or <code>false</code> .
pos	Position of the page on the paper: <code>left</code> or <code>right</code> , <code>inside</code> or <code>outside</code> , <code>top</code> or <code>bottom</code> (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 <code>noscale=true</code> 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`.

3 Implementation

Load some packages for utility macros.

```

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

`\BL@restore@dimens` Some dimensions changed by `typearea` must be saved and restored.

```

10  \newcommand*\BL@restore@dimens{}%

11  \BL@save@dimen{paperwidth}%
12  \BL@save@dimen{paperheight}%
13  \BL@save@dimen{textwidth}%
14  \BL@save@dimen{textheight}%
15  \BL@save@dimen{evensidemargin}%
16  \BL@save@dimen{oddsidemargin}%
17  \BL@save@dimen{topmargin}%
18  \BL@save@dimen{headheight}%
19  \BL@save@dimen{headsep}%
20  \BL@save@dimen{topskip}%
21  \BL@save@dimen{footskip}%
22  \BL@save@dimen{baselineskip}%
23  \let\l@addto@macro=\relax
24  \RequirePackage[pagesize=false]{typearea}%
25  \expandafter\let\csname ver@typearea.sty\endcsname=\relax
26  \BL@restore@dimens
27  \let\BL@save@dimen=\relax
28  \let\BL@restore@dimens=\relax
29 }
```

`\vb@xt@` Similar to `\hb@xt@`

```

30 \providecommand*\vb@xt@{\vbox to}
```

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

```

\BPaperHeight 31 \newlength\tPaperWidth
32 \newlength\tPaperHeight
```

`\oPaperWidth` The size of the original pages.

```

\oPaperHeight 33 \newlength\oPaperWidth \oPaperWidth=\z@
34 \newlength\oPaperHeight \oPaperHeight=\z@
```

`\BL@resize` Resizes the shipout box.

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

`\BL@scalePage` The whole scaling process of the the shipout box to the dimension of the new paper size.

```
36 \newcommand*\BL@scalePage{%
```

Normalize the shipout box

```
37 \setbox\AtBeginShipoutBox=\vbox{%
38   \vskip1in\moveright1in\box\AtBeginShipoutBox}%
39 \setbox\AtBeginShipoutBox=\hb@xt@\paperwidth{%
40   \box\AtBeginShipoutBox\hss}%
41 \setbox\AtBeginShipoutBox=\vb@xt@\paperheight{%
42   \box\AtBeginShipoutBox\vss}%
43 \ifBL@noscale\else
44   \ifdim\oPaperWidth>\z@
45     \setbox\AtBeginShipoutBox=\hbox{\resizebox{\oPaperWidth}{\oPaperHeight}%
46       {\box\AtBeginShipoutBox}}%
47   \else
48     \def\BL@resize##1{\resizebox{!}{!}{##1}}%
49     \setbox\@tempboxa=\hbox{\BL@resize{\copy\AtBeginShipoutBox}}%
50     \ifdim\ht\@tempboxa>\tPaperHeight
51       \def\BL@resize##1{\resizebox{!}{!}{\tPaperHeight}{##1}}%
52     \fi
53   \fi
54 \fi
55 \setbox\@tempboxa=\vb@xt@\tPaperHeight{%
56   \kern\z@\BL@t
57   \hb@xt@\tPaperWidth{\BL@l\BL@resize{\box\AtBeginShipoutBox}\BL@r}%
58   \BL@b\kern\z@
59 }%
```

Denormalize the shipout box

```
60 \setbox\AtBeginShipoutBox=\vbox{%
61   \vskip-1in\moveright-1in\box\@tempboxa}%
62 }
```

```
63 \newcommand\BL@tempa{}
64 \newcommand\BL@tempb{}
65 \newcommand*\BL@strip@comma{}
66 \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.

```
67 \newcommand*\BL@is@dimen@pair[1]{%
68   \expandafter\BL@@is@dimen@pair#1,\@nil
69 }
70 \newcommand*\BL@@is@dimen@pair{}
71 \def\BL@@is@dimen@pair#1,#2\@nil{%
72   \edef\BL@tempa{#1}\edef\BL@tempb{#2}%
73   \@tempswafalse
74   \ifx\BL@tempb\@empty\else
75     \edef\BL@tempb{\expandafter\BL@strip@comma\BL@tempb}%
76     \ifdimen{\BL@tempa}{%
```

```

77     \ifdimen{\BL@tempb}{\@tempwattrue}{}%
78   }{%
79   \fi
80   \if@tempswa
81     \expandafter\@firstoftwo
82   \else
83     \expandafter\@secondoftwo
84   \fi
85 }

86 \newcommand*\BL@strip@x{}
87 \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.

```

88 \newcommand*\BL@is@factor[1]{%
89   \expandafter\BL@@is@factor#1x\@nil
90 }
91 \newcommand*\BL@@is@factor{}
92 \def\BL@@is@factor#1x#2\@nil{%
93   \edef\BL@tempa{#2}%
94   \@tempswafalse
95   \ifx\BL@tempa\@empty\else
96     \edef\BL@tempa{\expandafter\BL@strip@x\BL@tempa}%
97     \ifdimen{\BL@tempa pt}{\@tempwattrue}{}%
98   \fi
99   \if@tempswa
100     \expandafter\@firstoftwo
101   \else
102     \expandafter\@secondoftwo
103   \fi
104 }

```

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

```

105 \newcommand*\BL@getDimens[3]{%
106   \BL@is@dimen@pair{#1}{%
107     \global#2=\BL@tempa\relax
108     \global#3=\BL@tempb\relax
109   }{%
110     \BL@is@factor{#1}{%
111       \global#2=\BL@tempa\paperwidth
112       \global#3=\BL@tempa\paperheight
113     }{%
114       \begingroup
115         \KOMAOptions{paper=portrait,paper=#1}%
116         \global#2=\paperwidth
117         \global#3=\paperheight
118       \endgroup
119     }%
120   }%
121 }

```

The key-value definitions for `\blowUp`:

```

122 \define@key{BL@}{origin}{%
123   \BL@getDimens{#1}{\oPaperWidth}{\oPaperHeight}%
124 }

125 \define@key{BL@}{target}{%
126   \BL@getDimens{#1}{\tPaperWidth}{\tPaperHeight}%
127 }

128 \newif\ifBL@noscale \BL@noscalefalse
129 \define@key{BL@}{noscale}[true]{%
130   \csname BL@noscale#1\endcsname
131 }

132 \newcommand*\BL@l{}
133 \newcommand*\BL@r{}
134 \newcommand*\BL@i{}
135 \newcommand*\BL@o{}
136 \newcommand*\BL@t{}
137 \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.

```

138 \newcommand\BL@setPos[1]{%
139   \def\BL@l{\hss}\def\BL@r{\hss}%
140   \def\BL@o{\hss}\def\BL@i{\hss}%
141   \def\BL@t{\vss}\def\BL@b{\vss}%
142   \BL@is@dimen@pair{#1}{%
143     \edef\BL@b{\vskip\BL@tempb}%
144     \if@twoside
145       \edef\BL@l{\noexpand\ifodd\value{page}%
146         \hskip\BL@tempa\noexpand\else\hss\noexpand\fi}%
147       \edef\BL@r{\noexpand\ifodd\value{page}%
148         \hss\noexpand\else\hskip\BL@tempa\noexpand\fi}%
149     \else
150       \edef\BL@l{\hskip\BL@tempa}%
151     \if
152   }{%
153     \@for\BL@tempa:=#1\do{%
154       \edef\BL@tempb{\expandafter\@car\BL@tempa\@nil}%
155       \expandafter\let\csname BL@\BL@tempb \endcsname\relax
156     }%
157     \if@twoside
158       \ifx\BL@i\relax
159         \def\BL@r{\ifodd\value{page}\hss\else\relax\fi}%
160         \def\BL@l{\ifodd\value{page}\relax\else\hss\fi}%
161       \fi
162       \ifx\BL@o\relax
163         \def\BL@l{\ifodd\value{page}\hss\else\relax\fi}%
164         \def\BL@r{\ifodd\value{page}\relax\else\hss\fi}%
165       \fi
166     \else
167       \let\BL@l=\BL@o
168       \let\BL@r=\BL@i
169     \fi
170   }%
171 }

```

```

172 \define@key{BL@}{pos}{%
173   \BL@setPos{#1}%
174 }

175 \newif\ifBL@landscape \BL@landscapefalse

176 \define@key{BL@}{landscape}[true]{%
177   \csname BL@landscape#1\endcsname
178 }

179 \newcommand*\BL@setup{}

180 \define@key{BL@}{onepage}[true]{%
181   \csname if#1\endcsname
182   \def\BL@setup{\gdef\shipout{\deadcycles\z@\setbox\@tempboxa=}}%
183   \fi
184 }

```

\blowUp The only user-level macro.

```

185 \newcommand*\blowUp[1]{%
186   \setkeys{BL@}{#1}%
187   \ifBL@landscape
188     \@tempdima=\tPaperWidth
189     \global\tPaperWidth=\tPaperHeight
190     \global\tPaperHeight=\@tempdima
191   \fi
192   \AtBeginDocument{%
193     \AtBeginDvi{\BL@pagesize@code{\tPaperWidth}{\tPaperHeight}}%
194     \AtBeginShipout{\BL@setup\BL@scalePage}
195   }%
196   \gdef\blowUp##1{%
197     \PackageWarning{blowup}{Only the first call of ‘\string\blowUp’
198       \MessageBreak is effective}}%
199 }

200 \@onlypreamble\blowUp

```

\BL@pagesize@code Page size information (depending on the T_EX compiler or driver).

```

201 \newcommand*\BL@pagesize@code[2]{}

202 \RequirePackage{iftex}

203 \ifluatex
204   \PackageInfo{blowup}{Generating code for LuaTeX}%
205   \@ifundefined{pagewidth}{%
206     \def\BL@pagesize@code#1#2{\global\pdfpagewidth=#1 %
207       \global\pdfpageheight=#2}%
208   }{%
209     \def\BL@pagesize@code#1#2{\global\pagewidth=#1 %
210       \global\pageheight=#2}%
211   }
212 \else
213   \ifxetex
214     \PackageInfo{blowup}{Generating code for XeTeX}%
215     \def\BL@pagesize@code#1#2{\global\pdfpagewidth=#1 %
216       \global\pdfpageheight=#2}%
217   \else

```

```

218 \ifvtex
219 \PackageInfo{blowup}{Generating code for VTeX}%
220 \def\BL@pagesize@code#1#2{\global\mediawidth=#1 %
221 \global\mediaheight=#2}%
222 \else
223 \ifpdf
224 \PackageInfo{blowup}{Generating code for pdfTeX}%
225 \def\BL@pagesize@code#1#2{\global\pdfpagewidth=#1 %
226 \global\pdfpageheight=#2}%
227 \else
228 \PackageInfo{blowup}{Generating code for dvips}%
229 \def\BL@pagesize@code#1#2{%
230 \@tempdima=#1 \@tempdimb=#2 %
231 \special{papersize=\the\@tempdima,\the\@tempdimb}%
232 }%
233 \fi
234 \fi
235 \fi
236 \fi

```

Change History

0.1a	2.0.0
General: Initial version. (RN) 1	General: Major parts rewritten. (RN) 1

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