

The `showcharinbox` package
<https://github.com/persian-tex/showcharinbox>

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1 What does the `showcharinbox` package do?

This package defines the command `\ShowCharInBox` which has the following syntax:

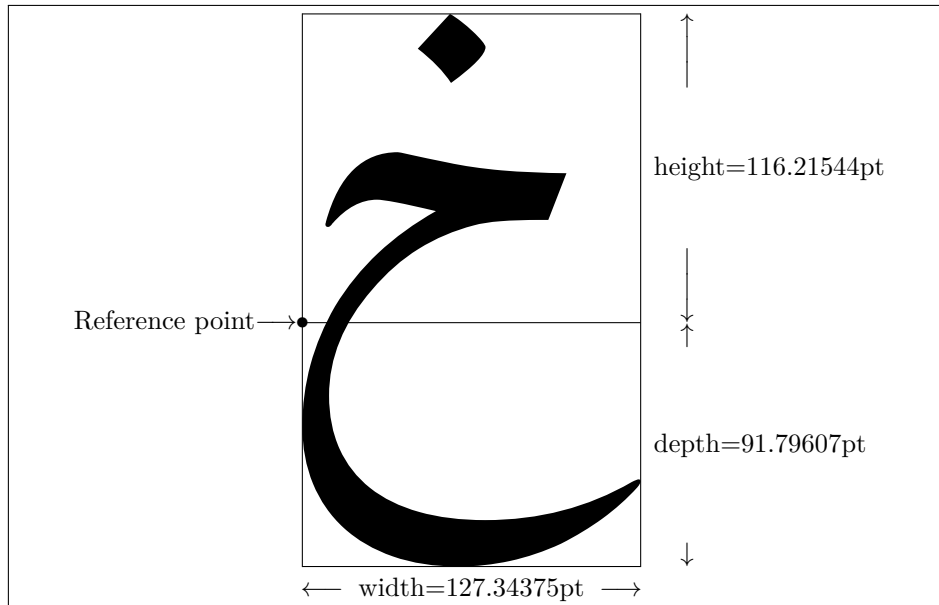
`\ShowCharInBox{⟨character⟩}`

This will show `⟨character⟩` inside a box showing its height, depth, and width information.

```

1 \documentclass{article}
2 \usepackage{fontspec}
3 \newfontfamily\testfont{XB Yas}
4 \usepackage{showcharinbox}
5 \begin{document}
6 \begin{center}
7 \ShowCharInBox{\fontsize{200}{210}\testfont \char"FEA5}
8 \end{center}
9 \end{document}

```



2 Implementation of showcharinbox package

```

1 \NeedsTeXFormat{LaTeX2e}
2 \newcommand*\showcharinbox@date{2013/04/04}
3 \newcommand*\showcharinbox@version{v0.1}
4 \ProvidesPackage{showcharinbox}
5     [\showcharinbox@date\space \showcharinbox@version\space
6     Showing characters inside a box]
7 \newdimen\showcharinbox@charwidth
8 \newdimen\showcharinbox@charheight
9 \newdimen\showcharinbox@chardepth
10 \newbox\showcharinbox@bigdot
11 \newbox\showcharinbox@smalldot

```

Macros for drawing figures:

```

12 \newcommand*\showcharinbox@hidehrule}[2]{%
13 \kern-#1\hrule height#1 depth#2 \kern-#2 }
14 \newcommand*\showcharinbox@hidevrule}[2]{\kern-#1{\dimen0=#1

```

```

15   \advance\dimen0 by#2\vrule width\dimen0}\kern-#2 }
\showcharinbox@makeblankbox puts rules at the edges of a blank box whose
dimensions are those of \box0 (assuming nonnegative width, height, and depth).
Argument 1 is rule thickness outside, and argument 2 is rule thickness inside:
16 \newcommand*\showcharinbox@makeblankbox}[2]{\hbox{\lower\dp0\vbox{\showcharinbox@hidehrule{#1}
overlap the rules at the corners:
17   \kern-#1%
18   \hbox to\wd0{\showcharinbox@hidevrule{#1}{#2}}%
set the vrule height:
19   \raise\ht0\vbox to #1{}}%
set the vrule depth:
20   \lower\dp0\vtop to #1{}}%
21   \hfil\showcharinbox@hidevrule{#2}{#1}}%
22   \kern-#1\showcharinbox@hidehrule{#2}{#1}}}}
23 \newcommand*\showcharinbox@maketypebox{\showcharinbox@makeblankbox{0pt}{1pt}}
24 \newcommand*\showcharinbox@makelightbox{\showcharinbox@makeblankbox{.2pt}{.2pt}}
\box\showcharinbox@bigdot is a null box with a bullet at its reference point.
\ht0 is the axis height:
25 \setbox0=\hbox{\vcenter{}} %
bullet is centered on the axis:
26 \setbox1=\hbox to\z@{\hss\bullet\hss} %
27 \setbox\showcharinbox@bigdot=\vbox to\z@{\kern-\ht1 \kern\ht0 \box1 \vss}
\cdot is centered on the axis:
28 \setbox1=\hbox to\z@{\hss\cdot\hss} %
29 \setbox\showcharinbox@smallldot=\vbox to\z@{\kern-\ht1 \kern\ht0 \box1 \vss}
\showcharinbox@arrows makes things like ← text →:
30 \newcommand*\showcharinbox@arrows}[2]{%
Argument 1 is width and argument 2 is text:
31   {\setbox0=\hbox{\mkern-2mu\mathord-\mkern-2mu$}
32     \hbox to #1{\kern-.055556em$\leftarrow\mkern-6mu$}
33     \cleaders\copy0\hfil
34     \kern.4em #2\kern.4em
35     \cleaders\copy0\hfil
36     $\mkern-6mu\rightarrow$\kern-.055556em}}
\showcharinbox@samplebox makes the outline of a box, with big dot at reference
point. Argument 1 is height, argument 2 is depth, argument 3 is width, and
argument4 is text:
37 \newcommand*\showcharinbox@samplebox}[4]{%
38   {\setbox0=\vtop{\vbox to #1{\hbox to #3{\vss}
39     \nointerlineskip
Now \box0 has the desired height, depth, and width:
40   \vbox to #2{}}%
41   \hbox{\copy\showcharinbox@bigdot
42     \vrule height.2pt depth.2pt width#3%
43     \kern-#3%

```

```

44 \showcharinbox@makelightbox
45 \kern-#3%
46 \raise#1\vbox{\hbox to #3{\hss#4\hss}
47 \kern 3pt}}}}

```

```

48
49 \newcommand{\ShowCharInBox}[1]{%
50 \setbox9=\hbox{#1}
51 \setlength{\showcharinbox@chardepth}{\dp9}
52 \setlength{\showcharinbox@charheight}{\ht9}
53 \setlength{\showcharinbox@charwidth}{\wd9}
54 \setbox0=\hbox{\$ \uparrow\$}

```

With luck, they'll line up:

```

55 \setbox1=\hbox to \wd0{\$ \mid \hss\$} %
56 \setbox2=\vbox to \showcharinbox@charheight{\copy0
57 \nointerlineskip \kern-.5pt \copy1
58 \nointerlineskip \kern-.5pt \copy1
59 \vfil
60 \moveleft 1em\hbox{height$=\the\showcharinbox@charheight}
61 \vfil
62 \copy1 \nointerlineskip \kern-.5pt
63 \copy1 \nointerlineskip \kern-.5pt
64 \hbox{\$ \downarrow\$}
65 \kern.2pt}
66 \setbox3=\vbox to \showcharinbox@chardepth{\kern.2pt\copy0
67 \vfil
68 \moveleft 1em\hbox{depth$=\the\showcharinbox@chardepth}
69 \vfil
70 \hbox{\$ \downarrow\$}
71 \kern0pt}

```

This cancels the null text above the \showcharinbox@samplebox:

```

72 \setbox4=\vtop{\kern-3pt %
73 \hbox{\showcharinbox@samplebox{\showcharinbox@charheight}{\showcharinbox@chardepth}{\showcharinbox@charwidth}
74 \kern-\showcharinbox@charwidth
75 \hbox to \showcharinbox@charwidth{\hss \unhbox9\hss}}
76 \kern3pt
77 \showcharinbox@arrows{\showcharinbox@charwidth}{width$=\the\showcharinbox@charwidth}}
78 \medskip\indent

```

\ht0 is the axis height:

```

79 \setbox0=\hbox{\$ \vcenter{\$}}%
80 \lower\ht0\hbox{Reference point$-\$ \kern-.2em$ \rightarrow$ \kern2pt}%
81 \raise\ht2\box4
82 \kern1.5em
83 \raise\ht2\vtop{\kern0pt\box2\nointerlineskip\box3}}

```

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