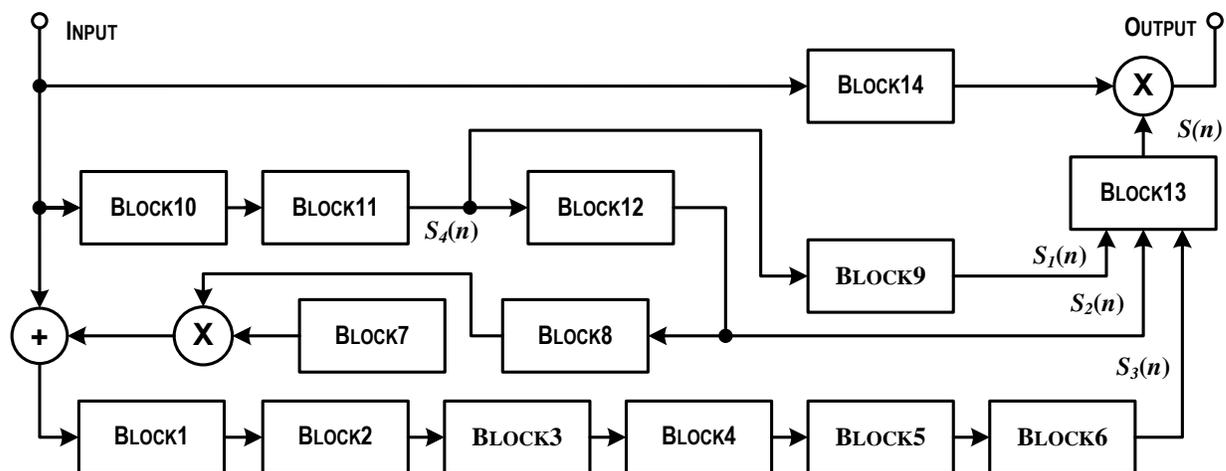


# Tips for Block Diagram Using "Visio"

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1. For creating new drawing in File menu, select New Drawing (Metric) in New option. "Metric" will give dimension in mm and "US units" will give it in inches.
2. If the shapes (circle, line, and rectangle) are not visible on the toolbar, follow the following steps
  - i. In Tool menu, select Customize option.
  - ii. In Customize window, mark the checkbox Drawing inside the Toolbar tab
  - iii. Select the appropriate shape in the Drawing window.
  - iv. For any other shapes, type the shape name in the Search for Shapes window.
3. Size of the block diagram. Draw the figure to make full use of the page/column width. Therefore, the horizontal width of the figure should be either full width or half width of A4 paper (leaving the margins), and the vertical height can be as needed and less than length of A4 paper. Full width:  $< 159$  mm (210 mm -  $2 \times 25.4$  mm), half width: 75 mm. Figures drawn with this width can be generally pasted in the document and presentation files without scaling. Try to draw the figure in the portrait format. The landscape format should be used as the last option.
4. Text font type. Arial Narrow, Arial, or Helvetica. This assures clear readability at different levels of scaling of the figure. For mathematical symbols, use Times New Roman (with or without italics as per appropriate math notation).
5. Font size for text = 10. For good readability, use "Small Caps" for text other than mathematical symbols. Text in bold is better suited for presentations and is also acceptable in documents. Therefore use all the text in bold. The text inside a text box should preferably be center aligned.
6. Box size. Preferably use 20mm x 10mm boxes for blocks. This can accommodate two lines of 10 characters. Boxes should not have unnecessary variation in their sizes. The size may be changed to indicate the complexity/importance of the block. The material inside the box may be abbreviated if needed. The box size should not be adjusted to fit the text.
7. Block outline thickness should match that of the text characters. For text in Arial Narrow, font size 10, and style bold, the box line width should be set by selecting "Weight = 05".
8. The inputs and outputs of a block should be on opposite sides of the box. Control inputs should be perpendicular to both input and output. A box should not be used to turn the signal direction. For example, when the input is applied on the left side of the box, the output should not be taken from the lower or upper side of the box. Take it from the right side and then turn it downwards or upwards, if needed.
9. Two points can be joined by a "line". A line can be converted to "connector" for routing around boxes. For converting a line to a connector, select the line. In Window menu, choose Show Shape Sheet. Find the Miscellaneous section and then set the ObjType cell = 2. This tells Visio to treat the shape as a routable connector.

10. Line and arrow size. Preferably use line "Weight = 05" and line ends "Begin or End = 05". This keeps the line thickness and arrow size compatible with the box line thickness.
11. Crossings and nodes. It is preferable to have line crossings without jumps. A black dot should be used for nodes of 3 or more lines. For placing the dot, right click on the line. In the Format menu, select Line and choose Line ends "Begin or End = 10".
12. Minimum spacing. Lines and boxes should have at least 4mm separation. Text should be at least 1mm separated from nearest line or box. Arrow head should be at least 6mm from the nearest bend in the line.
13. Adder and multiplier. Preferably draw a circle of 8mm x 8mm size. Inside the circle, write '+' or 'X' with Font Type = Arial, Size = 12, and Style=Bold.
14. If there is an alignment problem, zooming (>400%) can be used for high precision alignment.
15. You may go through the following example for sizes and separation. It may also be used as starting point for a new block diagram.



[Click here to download the Example as Visio file.](#)