VSYNC starts the
frame

Horizontal front
porch timing

Vertical back porch
timing

HSYNC starts at
the beginning of
each line

Vertical front porch
timing

Horizontal back
porch timing

320x240 display shown with
timing for VSYNC, HSYNC,
clock, and porch values

1 frame (1 refresh cycle)

VSYNC	Vertical back porch (VBP)	LCD Rows	Vertical front porch (VFP)

Total LCD lines =
VSYNC + VBP +
rows + VFP

1 row
(expanded)

HSYNC	Horizontal back porch (HBP)	LCD Columns	Horizontal front porch (HFP)

Total clocks per line
= HSYNC + HBP +
Columns + HFP

1   2   3   4   5   6   x   x   x   x   x   L

LCD clock

LCD data
enable

LCD data

Total clocks per frame = Total LCD lines * Total clocks per line