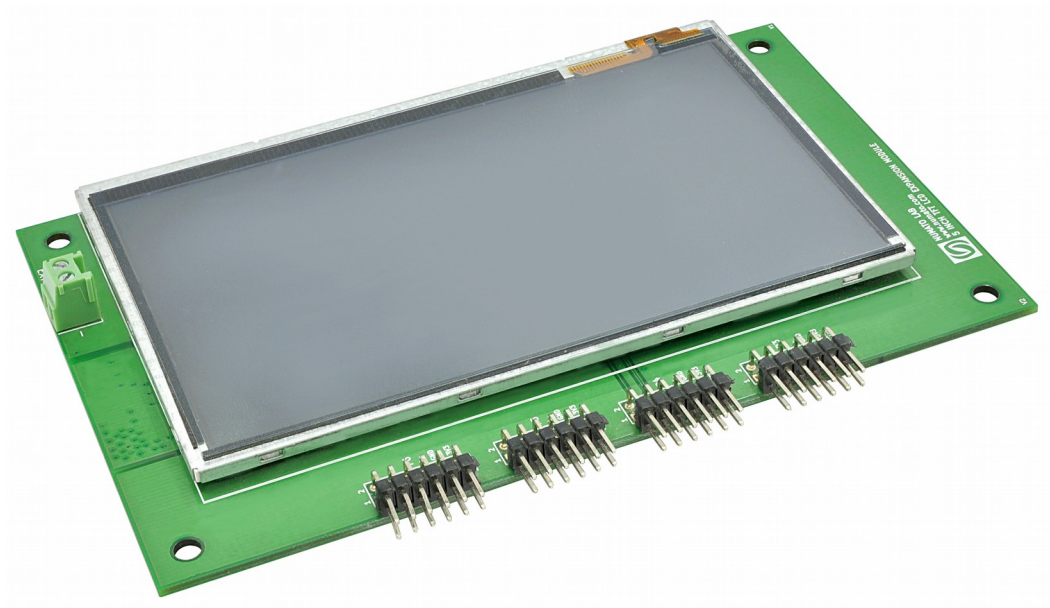




5 INCH TFT LCD DISPLAY EXPANSION MODULE

User Guide

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Mailing Address

Numato Systems Pvt Ltd
1st Floor, #56C Wipro Avenue
Phase 1 - Electronic City
Bangalore, KA-560100, India

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Introduction

This expansion module features a 480×272 TFT LCD Module which can be added to your custom project using 2×6 pin connectors. This module is designed to be used with Numato Lab's FPGA/Micro-controller boards featuring 2x6 pin Expansion connectors. This module can be used with other boards as well by using manual wiring.

Applications

- Product Prototype Development
- Development and testing of custom Projects
- Media devices
- Information kiosks

Board features

- A 480×272 TFT LCD Module with backlight
- Onboard voltage regulator
- Four 2x6 pin expansion connector
- Dimension: 118mm X 45mm

How to use the module

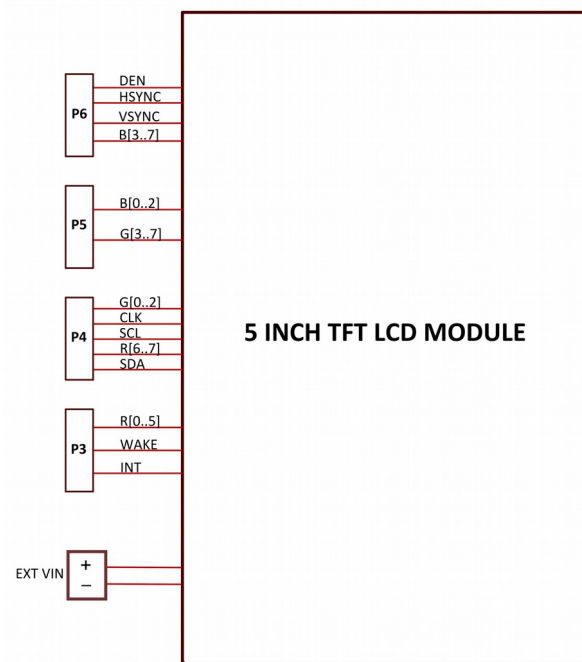
The following section describes how to use this module.

Components/Tools required

Along with the module, you may need the items in the list below for easy and fast installation.

1. Any FPGA board featuring sufficient number of 2 × 6 pin Expansion connectors (Manual wiring needed for boards that does not have 2x6 expansion connector)
2. 24V DC Power supply

Connection Diagram

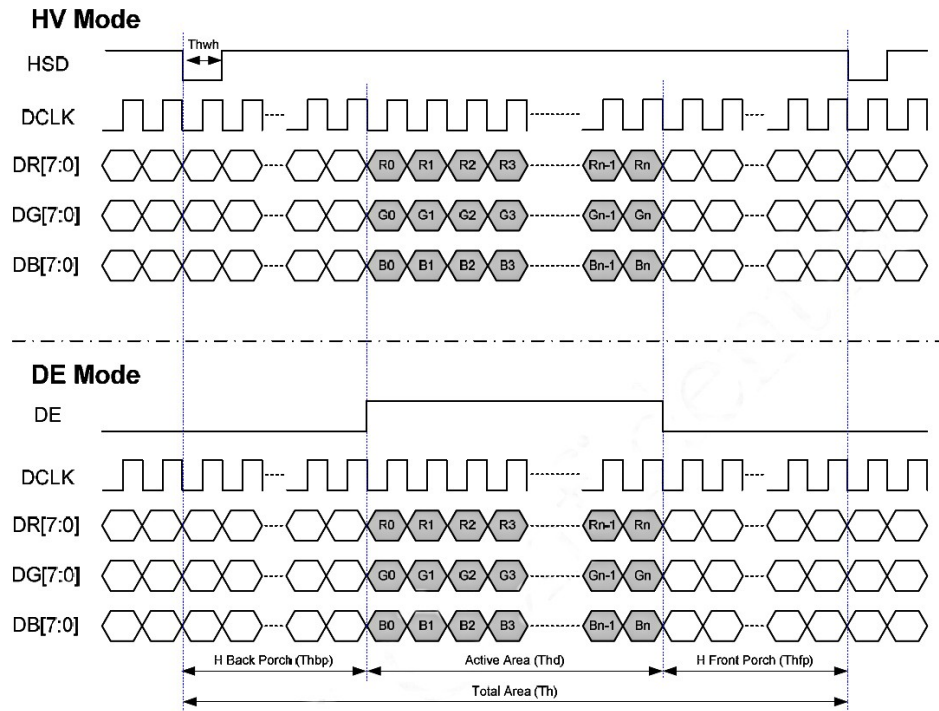


This diagram should be used as a reference only. For detailed information, see the schematics at the end of this document. Details of individual connectors are as below.

To use this module, directly attach the 2x6 expansion connector to the FPGA/Micro-controller development board where corresponding female header is available. External power is required for the operation of this module due to the higher voltage requirement of the back light.

Timing Chart

Parallel RGB mode data format



Parallel RGB input timign table

Parameter	Symbol	Value			Unit
		Min.	Typ.	Max.	
DCLK frequency	fclk	5	9	12	MHz
VSD period time	Tv	277	288	400	H
VSD display area	Tvd	272			H
VSD back porch	Tvb	3	8	31	H
VSD front porch	Tvfp	2	8	97	H
HSD period time	Th	520	525	800	DCLK
HSD display area	Thd	480			DCLK
HSD back porch	Thbp	36	40	255	DCLK
HSD front porch	Thfp	4	5	65	DCLK

Connection Details

Header P3

Header Pin No.	Pin Details
1	R5
2	R4
3	R3
4	R2
5	R1
6	R0
7	INT
8	WAKE
9	GND
10	GND
11	VCC3V3
12	VCC3V3

Header P4

Header Pin No.	Pin Details
1	G2
2	G1
3	CLK
4	SCL
5	G0
6	SDA
7	R7
8	R6
9	GND
10	GND
11	VCC3V3
12	VCC3V3

Header P5

Header Pin No.	Pin Details
1	B2
2	B1
3	B0
4	G7
5	G6
6	G5
7	G4
8	G3
9	GND
10	GND
11	VCC3V3
12	VCC3V3

Header P4

Header Pin No.	Pin Details
1	DEN
2	VSYNC
3	HSYNC
4	B7
5	B6
6	B5
7	B4
8	B3
9	GND
10	GND
11	VCC3V3
12	VCC3V3

For more information, refer the schematics at the end of this document.

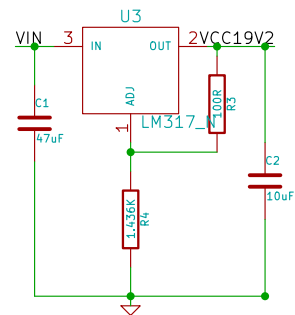
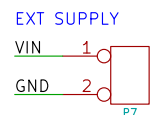
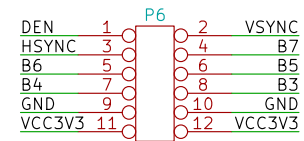
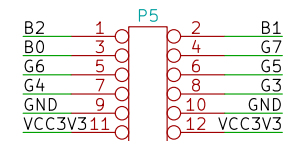
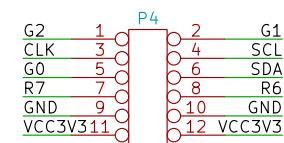
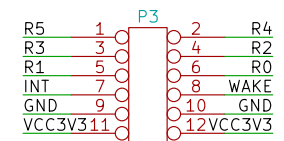
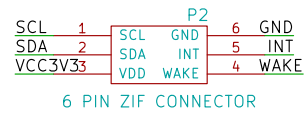
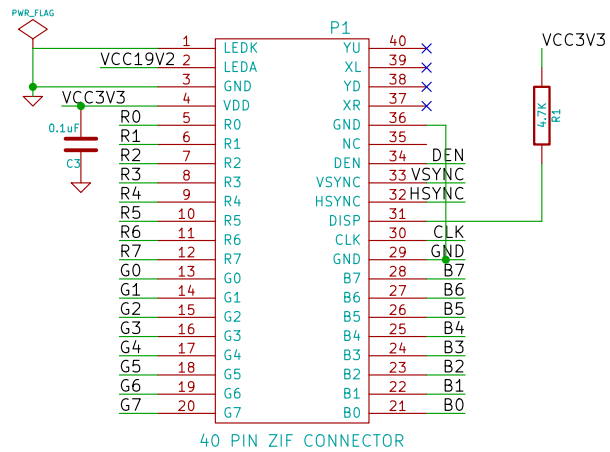
Technical Specifications

Parameter *	Value	Unit
Basic Specifications		
Power supply voltage (External)	22-24	V
Supply Current	100	mA
Max digital input voltage	3.3	V

All parameters considered nominal. Numato Systems Pvt Ltd reserve the right to modify products without notice.

Schematics
See next page





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Numato Lab		
File: 5InchLCDExpansionModule.sch		
Sheet: /		
Title: 5 INCH TFT LCD EXPANSION MODULE		
Size: A4	Date: 8 jun 2015	Rev: 1
KiCad E.D.A.		Id: 1/1