



Website: [www.displaytech-us.com](http://www.displaytech-us.com)

# **Embedded Demonstration Board Product Datasheet**

## **EMB018028INTDEMO**

1.8", 2.2", 2.4" and 2.8" Integrated TFT  
Demonstration Board

# Table of Contents

1. INTRODUCTION .....	3
2. INT MODULE AUTO-INITIALIZATION .....	3
3. EXAMPLE SOFTWARE .....	3
4. MECHANICAL DRAWING .....	4
5. SCHEMATIC.....	5
6. BILL OF MATERIALS .....	7
7. COMPONENT DATASHEETS .....	9

## 1. Introduction

The Displaytech EMB018028INTDEMO is a demonstration board for the Displaytech INT018ATFT, INT022ATFT, INT024BTFT and INT028ATFT integrated driver boards. The EMB018028INTDEMO is controlled by a Microchip PIC32MX460F512L MCU and includes a USB connection, 2Mbit SPI flash, and an SD card slot.

The INT018ATFT, INT022ATFT, INT024BTFT and INT028ATFT integrated driver boards power and control a Displaytech DT018ATFT, DT022ATFT, DT024BTFT or DT028ATFT display. Each TFT module is mounted on the integrated board PCB on which is mounted a RAiO RA8872 controller with integrated touch screen control and LED backlight power circuitry. Please see the respective INT datasheet for more information ([section 7](#)).

The EMB018028INTDEMO is powered via a 5v USB connection, with a power switch (SW2) to turn the device on and off. All power levels required by

the INT boards are generated and regulated by on-board voltage regulators (see the [schematic](#) for more information).

## 2. INT Module Auto-Initialization

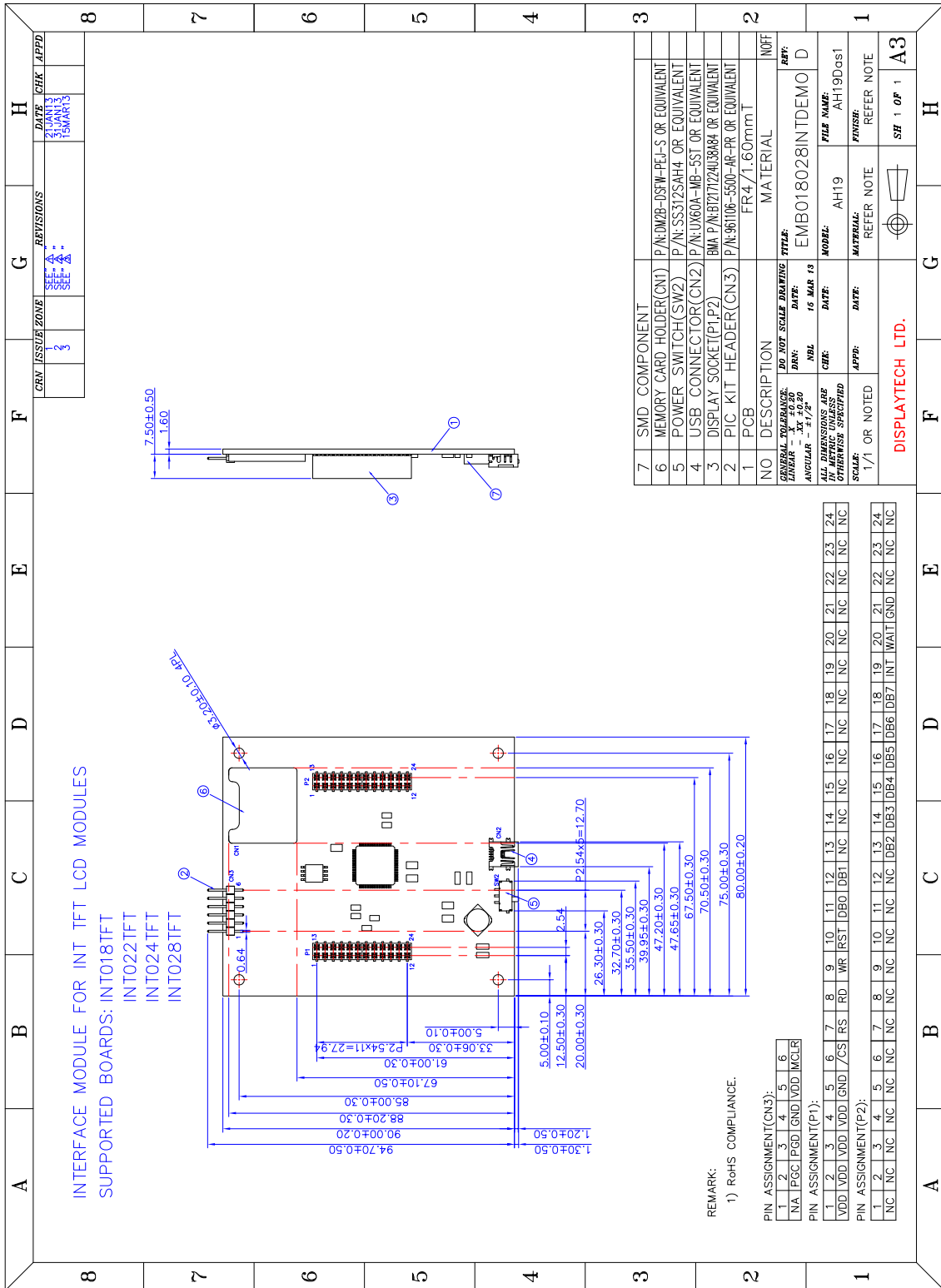
The RA8872 as well as the COG Ilitek TFT Controller/Driver on-board the TFT module are automatically initialized upon power-up of the integrated module by an on-board ATmega8 microcontroller.

During the auto-initialization time, the PIC MCU should configure all I/O pins connected to the integrated board as inputs, as the on-board ATmega8 asserts control over these pins to configure the controller and driver. Please see the respective integrated board datasheet for more details ([section 7](#)).

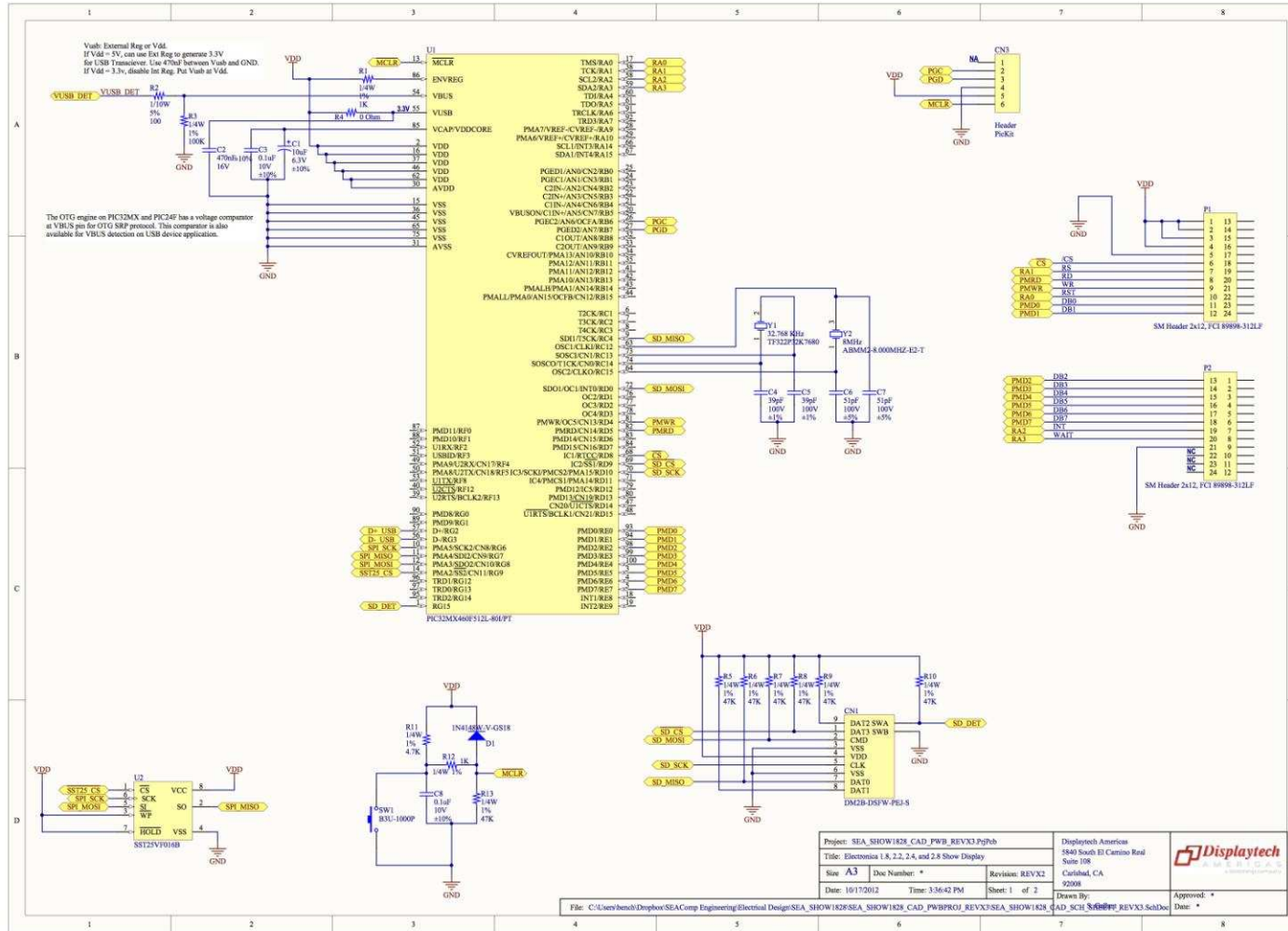
## 3. Example Software

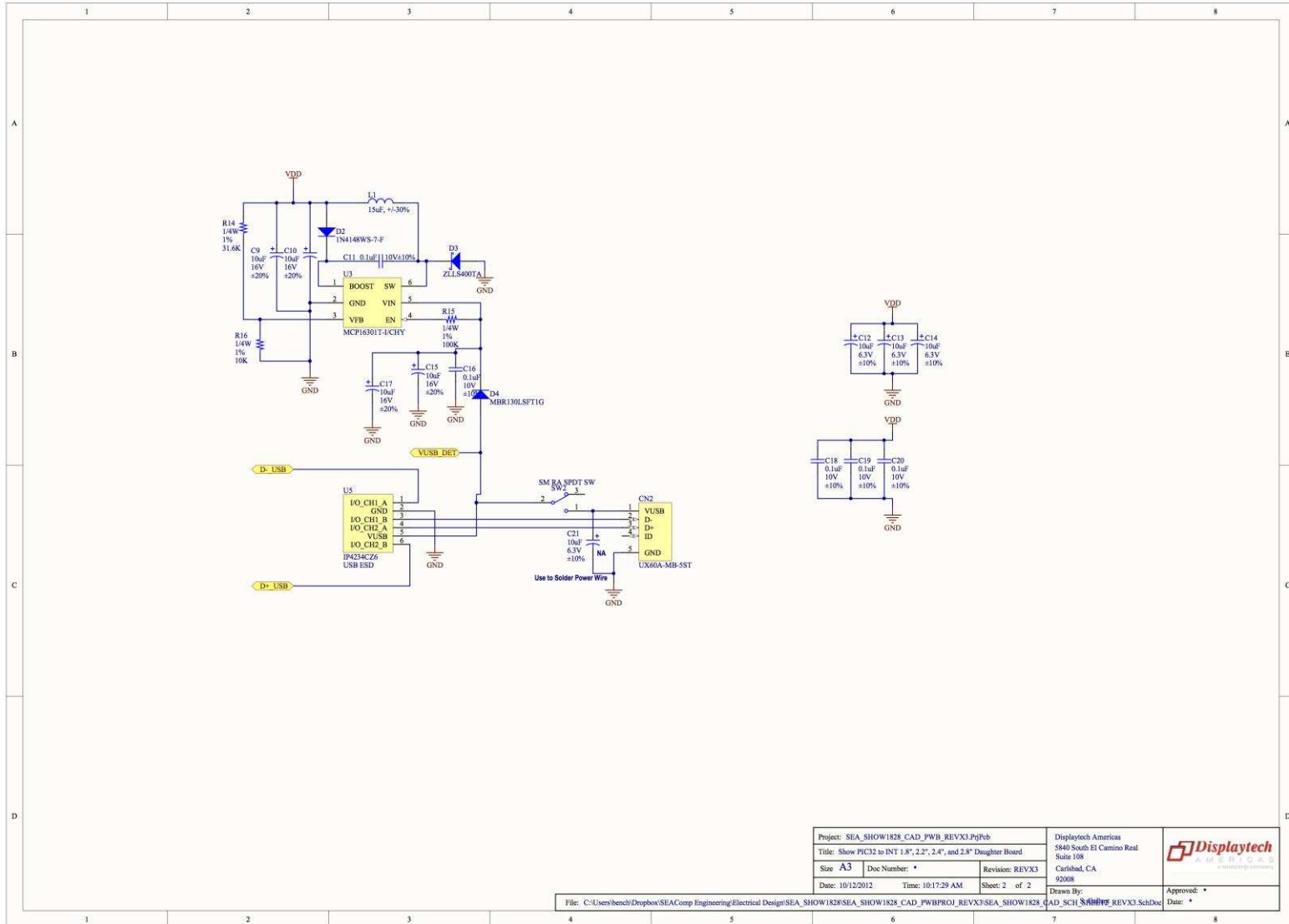
Example software is available from Displaytech upon request. Please contact Displaytech at [sales@displaytech-us.com](mailto:sales@displaytech-us.com).


### 4. Mechanical Drawing



# 5. Schematic





Project: SEA_SHOW1828_CAD_FWB_REVX3.PjFeb		Displaytech America	
Title: Show PIC32 to INT 1.8", 2.2", 2.4", and 2.8" Daughter Board		5840 South El Camino Real Suite 108 Carlsbad, CA 92008	
Size: A3	Doc Number: *	Revision: REVX3	
Date: 10/12/2012	Time: 10:17:29 AM	Sheet: 2 of 2	
File: C:\Users\bench\Dropbox\SEAComp Engineering\Electrical Design\SEA_SHOW1828\SEA_SHOW1828_CAD_FWB\PROJ_REVX3\SEA_SHOW1828_CAD_SCH_Schematic_REVX3.SchDoc			Drawn By: * Approved: * Date: *

## 6. Bill of Materials

Manufacturer	Part Number	Package	Qty	Value	Designator	Description
Kemet	T491A106M016AT	1206	5	10uF	C1, C12, C13, C14, C21	Polarized Capacitor (Axial)
TDK	C1608X7R1C474K	0603	1	470nF	C2	Ceramic Capacitor
Kemet	C0603C104K8RACT U	0603	7	0.1uF	C3, C8, C11, C16, C18, C19, C20	Polarized Capacitor (Axial)
AVX	06031A390FAT2A	0603	2	39pF	C4, C5	Polarized Capacitor (Axial)
AVX	06031A510JAT2A	0603	2	51pF	C6, C7	Polarized Capacitor (Axial)
Kemet	T491A106M016AT	1206	4	10uF	C9, C10, C15, C17	Polarized Capacitor (Axial)
Hirose	DM2B-DSFW-PEJ-S	-	1	-	CN1	CONN MEMORY MINI SD BOTTM MT SMD
Hirose	UX60A-MB-5ST	-	1	-	CN2	USB 2.0, Right Angle, SMT, MINI-B Type, Receptacle, 5 Position
3M	961106-5500-AR-PR	-	1	-	CN3	SM Header, 1x6-Pin, Right Angle, 0.1"
Vishay	1N4148W-V-GS18	SOD-123-2	1	-	D1	High Conductance Fast Diode
Vishay	1N4148WS-7-F	SOD-323	1	-	D2	High Conductance Fast Diode
Diodes	ZLLS400TA	SOD-323	1	-	D3	Schottky Rectifier
ON Semi	MBR130LSFT1G	SOD-123FL	1	-	D4	High Conductance Fast Diode
Sumida	CDRH6D28NP- 150NC	-	1	15uF, +/-30%	L1	Inductor
FCI	89898-312LF	-	2	-	P1, P2	Header, SMT, 2x12-Pin, 0.1"
Vishay	CRCW06031K00FKE AHP	0603	2	1K	R1, R12	Resistor
Yageo	RC0603JR-07100RL	0603	1	100	R2	Resistor
Vishay	CRCW0603100KFKE AHP	0603	2	100K	R3, R15	Resistor

Manufacturer	Part Number	Package	Qty	Value	Designator	Description
Yageo	RC0603JR-070RL	0603	1	0 Ohm	R4	Resistor
Vishay	CRCW060347K0FKE AHP	0603	7	47K	R5, R6, R7, R8, R9, R10, R13	Resistor
Vishay	CRCW06034K70FKE AHP	0603	1	4.7K	R11	Resistor
Vishay	CRCW060331K6FKE A	0603	1	31.6K	R14	Resistor
Vishay	CRCW060310K0FKE AHP	0603	1	10K	R16	Resistor
Omron	B3U-1000P	ELTSM-65	1	-	SW1	Switch
NKK Switches	SS312SAH4	-	1	-	SW2	SM SPDT Sub Min Tog Switch, Right Angle
Microchip	PIC32MX460F512L- 80I/PT	TQFP-PT100	1	-	U1	80 MHz 32-Bit Microcontroller with USB, 512KB Program Memory, 100-pin TQFP
Microchip	SST25VF016B-75-4I- S2AF	SOIJ-SM8	1	-	U2	16mbit SPI Bus Serial flash, 8-Pin SOIJ, Industrial Temperature
Microchip	MCP16301T-I/CHY	SOT-23-6	1	-	U3	Buck Adj 0.6A SOT23-6 Regulator. 2-15Vout, 4-30Vin
NXP	IP4234CZ6	SC-74, SOT-457	1	-	U5	Single USB 2.0 ESD protection to IEC 61000-4-2 level 4
CTS- Frequency Controls	TF322P32K7680	3215	1	-	Y1	Crystal Oscillator
CTS- Frequency Controls	ABMM2-8.000MHZ- E2-T	SMD 6mmx3.6mm	1	-	Y2	Crystal Oscillator



## 7. Component Datasheets

Displaytech INT018ATFT	<a href="#">Link</a>
Displaytech INT022ATFT	<a href="#">Link</a>
Displaytech INT024BTFT	<a href="#">Link</a>
Displaytech INT028ATFT	<a href="#">Link</a>
Displaytech DT018ATFT	<a href="#">Link</a>
Displaytech DT022ATFT	<a href="#">Link</a>
Displaytech DT024BTFT	<a href="#">Link</a>
Displaytech DT028ATFT	<a href="#">Link</a>
RAiO RA8872 TFT Controller	<a href="#">Link</a>
Ilitek ILI9163 COG TFT Controller/Driver	<a href="#">Link</a>
Ilitek ILI9340 COG TFT Controller/Driver	<a href="#">Link</a>
Ilitek ILI9341 COG TFT Controller/Driver	<a href="#">Link</a>
Microchip PIC32MX460F512L Microcontroller	<a href="#">Link</a>
SST SST25VF016B 16 Mbit SPI Serial Flash	<a href="#">Link</a>
Hirose DM2B-DSFW-PEJ-S	<a href="#">Link</a>
Microchip MCP16301T-I/CHY	<a href="#">Link</a>