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Embedded Demonstration Board Product Datasheet

EMB018028INTDEMO

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

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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

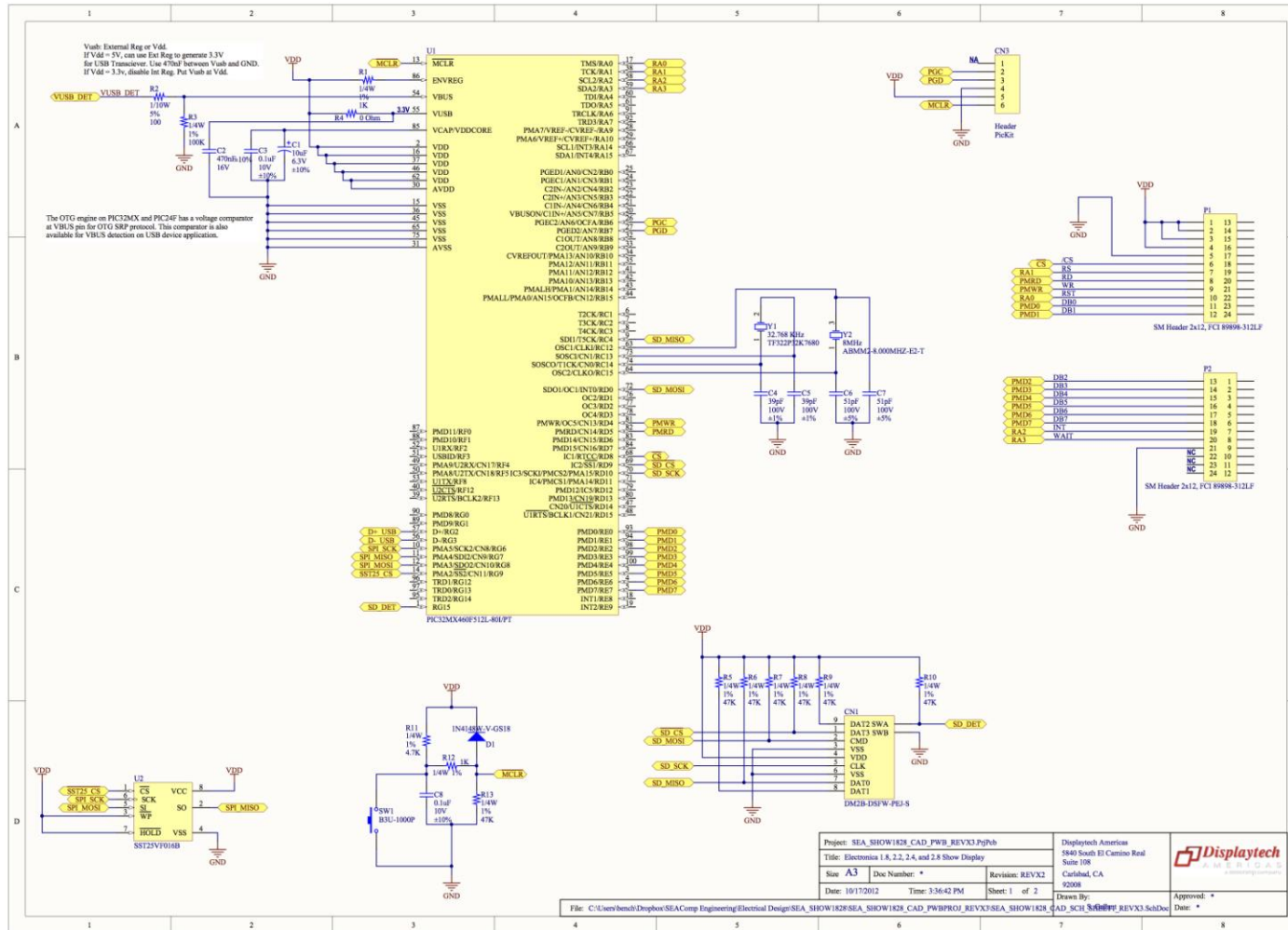
The RA8872 as well as the COG Ilitek TFT Controller/Driver on-board the TFT module are automatically initialized upon power-up of the integrated module by an on-board ATmega8 microcontroller.

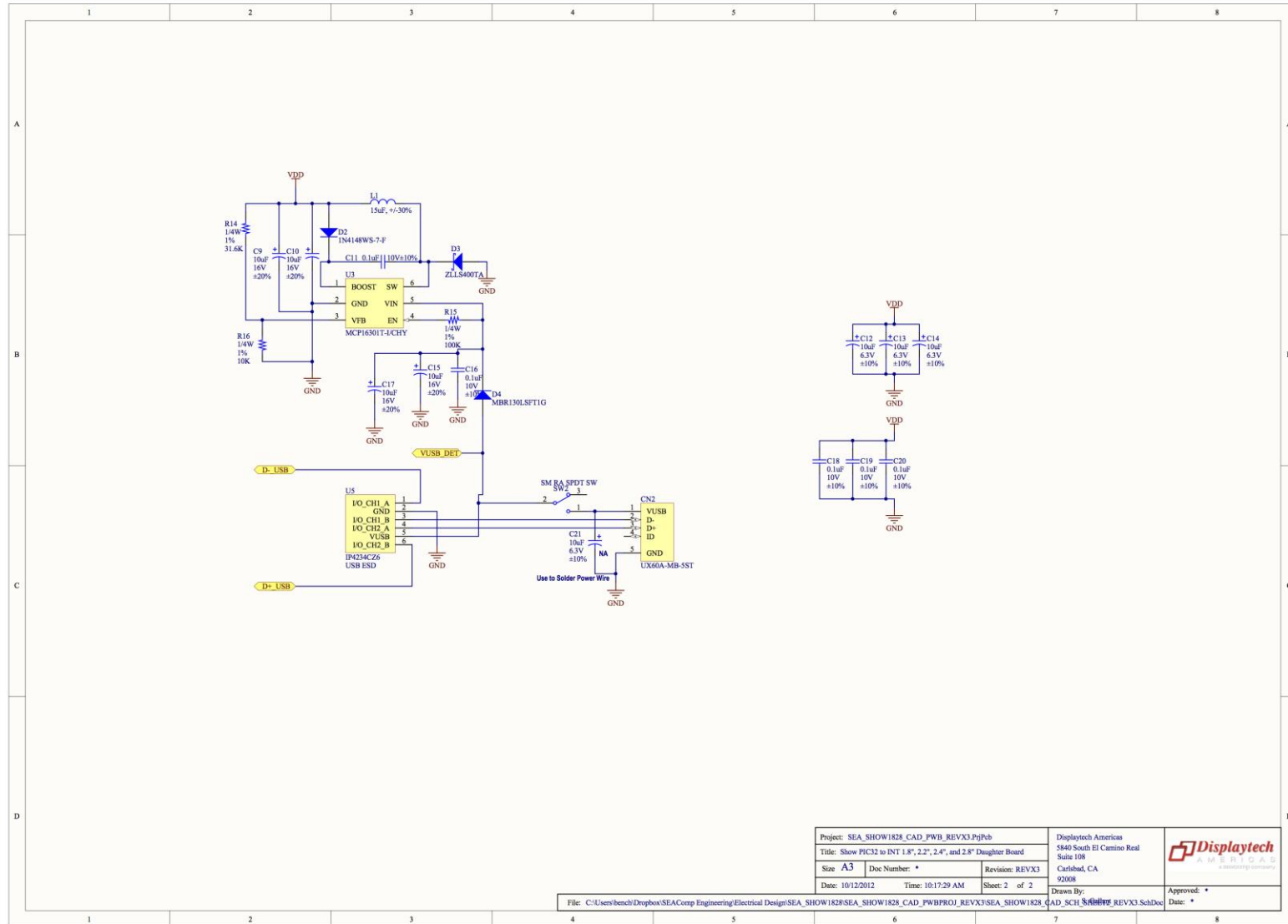
During the auto-initialization time, the PIC MCU should configure all I/O pins connected to the integrated board as inputs, as the on-board ATmega8 asserts control over these pins to configure the controller and driver. Please see the respective integrated board datasheet for more details ([section 7](#)).

3. Example Software

Example software is available from Displaytech upon request. Please contact Displaytech at sales@displaytech-us.com.

5. Schematic





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	C0603C104K8RACTU	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	CRCW06031K00FKEAHP	0603	2	1K	R1, R12	Resistor
Yageo	RC0603JR-07100RL	0603	1	100	R2	Resistor
Vishay	CRCW0603100KFKEAHP	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	Link
Displaytech INT022ATFT	Link
Displaytech INT024BTFT	Link
Displaytech INT028ATFT	Link
Displaytech DT018ATFT	Link
Displaytech DT022ATFT	Link
Displaytech DT024BTFT	Link
Displaytech DT028ATFT	Link
RAiO RA8872 TFT Controller	Link
Ilitek ILI9163 COG TFT Controller/Driver	Link
Ilitek ILI9340 COG TFT Controller/Driver	Link
Ilitek ILI9341 COG TFT Controller/Driver	Link
Microchip PIC32MX460F512L Microcontroller	Link
SST SST25VF016B 16 Mbit SPI Serial Flash	Link
Hirose DM2B-DSFW-PEJ-S	Link
Microchip MCP16301T-I/CHY	Link

Mouser Electronics

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