	<b>Design Project Plan</b>			
	<u>Customer:</u>			
	<u>Project:</u>			
	<u>Date:</u>		<u>Prepared by:</u>	
	<u>Rev.:</u>		<u>Approved by:</u>	

**Scope:**

Compile and define the project technical objectives and specifications for the \_\_\_\_\_ baseboard.

**Specifications:**

**Electrical**

Item	Specifications
Processor board	x270W, p/n TBD - no PCI interface bridge
Power input	<ul style="list-style-type: none"> <li>- 10-36VDC. Routed via board edge connector.</li> <li>- 250ms bulk storage for COM when power is removed</li> <li>- Power consumption target = 35W Max</li> <li>- LED power indicator required for all input and regulated voltages</li> </ul>
Low voltage detect	<ul style="list-style-type: none"> <li>- Provide for 250ms of COM power supply holdup when power is removed.</li> <li>- Low Voltage Detect to monitor 10-36 VDC input and provide interrupt to COM CPU. Interrupt to be selectable between 12VDC or 28.5VDC.</li> </ul>
PCMCIA	Provide connector for 1 type II PCMCIA slot.
Storage	<ul style="list-style-type: none"> <li>- Secure Digital /Multi Media Card (SD/MMC)</li> <li>- Compact Flash card</li> </ul>
Serial	<ul style="list-style-type: none"> <li>- 4 ports. Use x270 ports only.</li> <li>- Serial ports routed to Coca Cola's backplane via board edge connector <ul style="list-style-type: none"> <li>▪ COM A: Full Modem – RS232, standard voltage levels</li> <li>▪ COM B: Rx/Tx – RS232, standard voltage levels</li> <li>▪ COM C: Rx/Tx/CTS/RTS – RS232, standard voltage levels</li> <li>▪ COM D: Rx/Tx – RS232, standard voltage levels</li> </ul> </li> </ul>
CAN	<ul style="list-style-type: none"> <li>- Single Philips/NXP SJA1000.</li> <li>- Bus speed: up to 250kbits/sec.</li> <li>- SJA1000 managed via a CPLD.</li> </ul>
Ethernet	1 Port: 10/100Mbps with isolation magnetics



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LCD	<ul style="list-style-type: none"> <li>- Provide for LVDS connection to Sharp LQ150X1LGB1</li> <li>- Provide for LVDS connection to Samsung LTA150XH-L06</li> </ul>
LCD Inverter	<ul style="list-style-type: none"> <li>- Interface for ERG DMD60J2 and/or ERG DMW3150 control</li> <li>- Design for CPU PWM to DC for control of LCD backlight inverter</li> </ul>
LED	<ul style="list-style-type: none"> <li>- Two debug LEDs driven from CPU/CPLD</li> </ul>
USB	<ul style="list-style-type: none"> <li>- 6 USB 1.1 host ports using 2 USB hubs</li> <li>- Hub 1 – 3 ports – Port 1 routed to standard type A connector on base board 100ma – Ports 2,3 provide 750ma total max</li> <li>- Hub 2 – 3 ports- 750ma total for all 3 ports</li> </ul>
Audio	<ul style="list-style-type: none"> <li>- Microphone input</li> <li>- Line level audio input</li> <li>- Fault tolerant 500mw amplifier output.</li> </ul>
Buzzer	Separate buzzer from CPU capable of 90dba at 1m
Watchdog	Yes – via CPU
Real Time Clock	5 year operation with battery backup provided by socketed lithium battery
Baseboard interconnect	<ul style="list-style-type: none"> <li>- Board Edge Connector: EMLB contacts loaded into both ends, three levels of pin height (GND, PWR, Signal). Similar to Tyco p/n 650473-5</li> <li>- Board to board interconnect to carry the following signals: See Appendix</li> </ul>
Connectors and Switches	<ul style="list-style-type: none"> <li>- JTAG: 10 pin header</li> <li>- Console: 3 pin header</li> <li>- USB: One port with Type A</li> <li>- Reset: Pushbutton</li> <li>- Spare IO: 0.1" header</li> <li>- Baseboard interconnect: <ul style="list-style-type: none"> <li>▪ Board Edge Connector: EMLB contacts loaded into both ends, three levels of pin height (GND, PWR, Signal). Similar to Tyco p/n 650473-5</li> <li>▪ Board to board interconnect to carry the following signals: See Appendix</li> </ul> </li> </ul>

## Mechanical

ITEM	DESCRIPTION
Board Outline	Size: (approx 4.5"x7"). Board size to be a single height VME standard board, supporting TBD mezzanine functionality for the COM through the CAMI connectors and other TBD functionality as needed
Board Markings	Board markings will conform to industry standards that require fabrication facility marking, flammability rating, Company logo, bare board P/N and revision be implemented in solder mask, assembly P/N and revision and other such markings to be implemented in silk screen. This will be fully defined on our board drawing.
Component Placement	Single sided PCB – 6 layer max - TBD

## Software

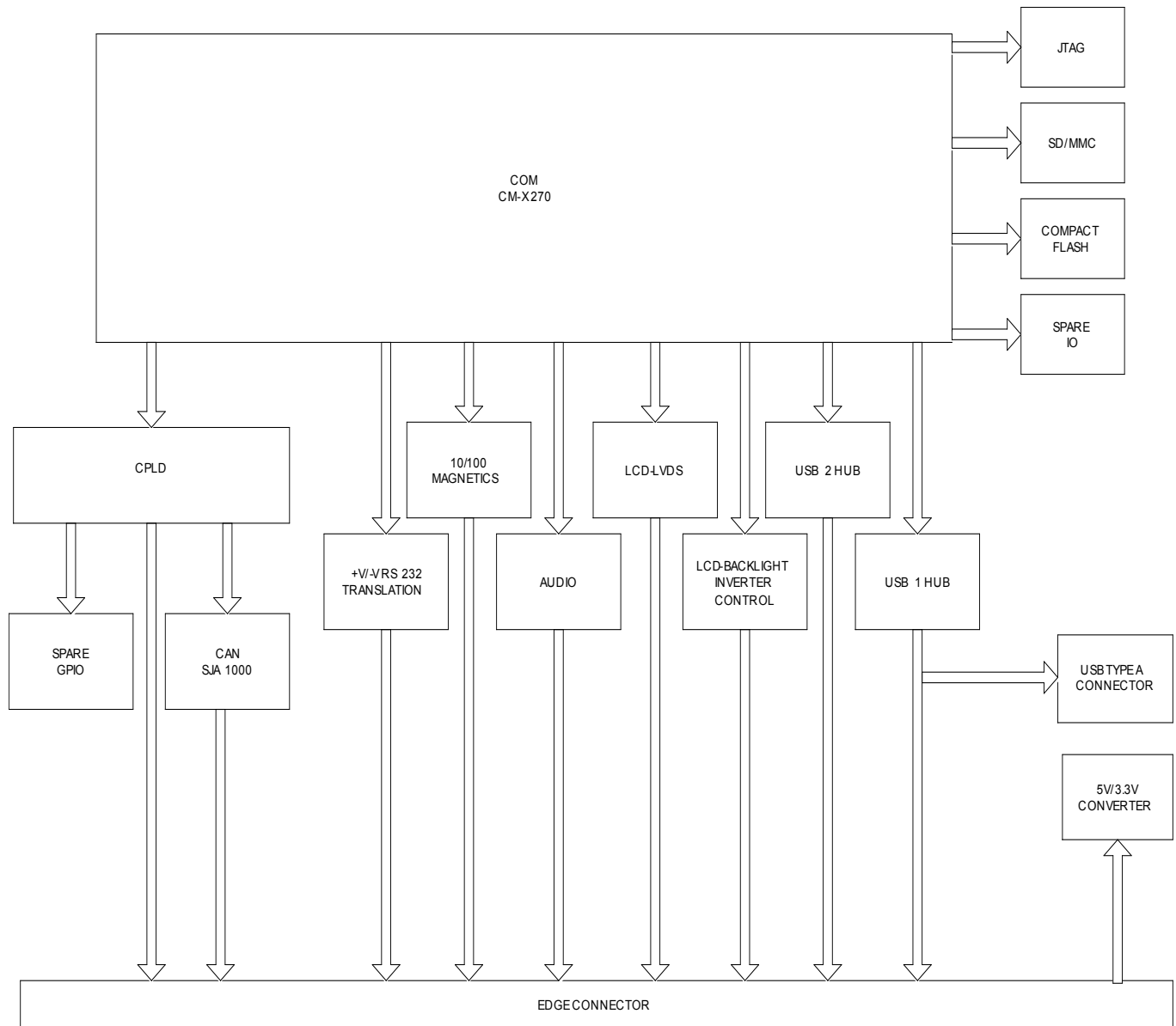
ITEM	DESCRIPTION
CPLD	CPLD firmware required to manage CAN controller and 16 additional GPIO signals developed by Tracan.
OS	CE5.0
CAN controller firmware	All CAN associated firmware to be developed by customer.

## Environmental

ITEM	DESCRIPTION
ESD/FAULT	<ul style="list-style-type: none"><li>- Provide ESD protection on all IO.</li><li>- Current limit all input voltages</li><li>- Current limit all output voltages</li></ul>
Lifetime	Design for > 150,000hr MTBF
Temperature	<ul style="list-style-type: none"><li>- Operating temperature range: -20C to +70C</li><li>- Storing temperature range: -20C to +70C</li><li>- Design to withstand 50G/20ms shock</li></ul>

**APPENDIX:**

**Figure 1 – Baseboard Block Diagram**



**APPENDIX:**

**Figure 2 – Board Edge Connector Signals**

LCD		
	+3.3V	VCC
	+3.3V	Vcc
	Ground	GND
	Ground	GND
	RxIN0-	LVDS
	RxIN0+	LVDS
	Ground	GND
	RxIN1-	LVDS

	RxIN1+	LVDS
	Ground	GND
	RxIN2-	LVDS
	RxIN2+	LVDS
	Ground	GND
	RxCLKIN-	LVDS
	RxCLKIN+	LVDS
	Ground	GND
	RxIN3-	LVDS
	RxIN3+	LVDS
	Ground	GND
	LVDS_SET	
LCD-backlight		
	ENABLE	
	VARIABLE DC	
CAN		
	H	
	L	
	Ground	GND
AUDIO		
	L-in	Line IN
	R-in	
	GND-in	
	L-out+	SPK
	L-out-	
	R-out+	
	R-out-	
	GND-out	
	L-mic in	MIC
	R-min in	
	GND-mic in	
10/100		
	TX +	
	TX -	
	RX +	
	RX -	
USB		
	D1+	USB1
	D1-	
	D1 +5V	
	D1 GND	
	D2+	USB2
	D2-	
	D2 +5V	
	D2 GND	
	D3 +	USB3
	D3 -	
	D3 +5V	

	D3 GND	
	D4 +	USB4
	D4 -	
	D4 +5V	
	D4 GND	
	D5 +	USB5
	D5 -	
	D5 +5V	
	D5 GND	
POWER		
	10-36 VDC	
	GND	
SERIAL		
	RX	COMA
	TX	
	CTS	
	RTS	
	DCD	
	DTR	
	DSR	
	RI	
	RX	COMB
	TX	
	RX	COMC
	TX	
	CTS	
	RTS	
	RX	COMD
	TX	

**Deliverables:**

Item	Date
Baseboard	TBD

**Approvals:**

The information presented above reflects the understanding of the project at this date. Any additions can be added to reflect updates and corrections. Please sign and return via email or fax.

Company	Name	Date	Signature
Tracan Electronics Corporation			
Customer			