

Deal Comp Oy



INTEGRATED BUS-PC

Reference case of a Joint Intelligent Bus Project

Core competence

Bus and Taxi
Transportation

Metro and Train
Transportation

Public
Safety

- Ruggedness
- Reliability
- Extended Temperature
- High Availability
- Scalability
- Connectivity

Defence

Industrial

Taylor made
solutions



Key decisions

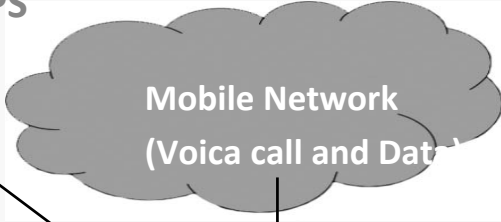
1. **Mistake - Price Overrides Cost Analysis**
 - Price advantage through full-integration
 - Reliability and maintenance cost
 - Lifecycle costs (scaling and upgrading)
 - Cost of system downtime, quality and reliability
2. **Selection of Interfaces**
 - *USB Not usable* in vehicle environment
 - RS-485 (RS-232) and Ethernet preferred
 - Dedicated connectors reduce wiring and maintenance costs
3. **Wireless Specification**
 - Support for new standards LTE/CDMA2000
 - Emergency Voice Call support
 - Upgradable to support Passenger WiFi and AFC?
 - Future proof?



Intelligent Bus

Highly Rugged Integrated BUS PC with an Internal DVR

GPS



MIC & 10W AUDIO



Voice Call I/F



Driver MMI

DISPLAY I/F

Announcement
Entertainment

2 x 7W AUDIO



RS-485



PIS

CAN + DIO + ANALOG

Engine & Bus
Parameters

RS-232/485 SERIAL



Surveillance

4x CV INPUT



Fare Collection System
+ Display

System Highlights



1. Purpose Built

- Ultra-Rugged sealed IP68 enclosure and connectors
- All-in-one System Connector, M-12 Ethernet and TNC connectors
- Power Supply 9-32VDc with 10 minute UPS and Ignition control
- Indefinite overvoltage protection to +60VDc, 100VDc transients
- Wide temperature range -25 to +55°C operating
- SATA II Flash Disk for storage and OS
- Compliant to standards ISO 7637-2 :2011 ISO 16750-2 :2010



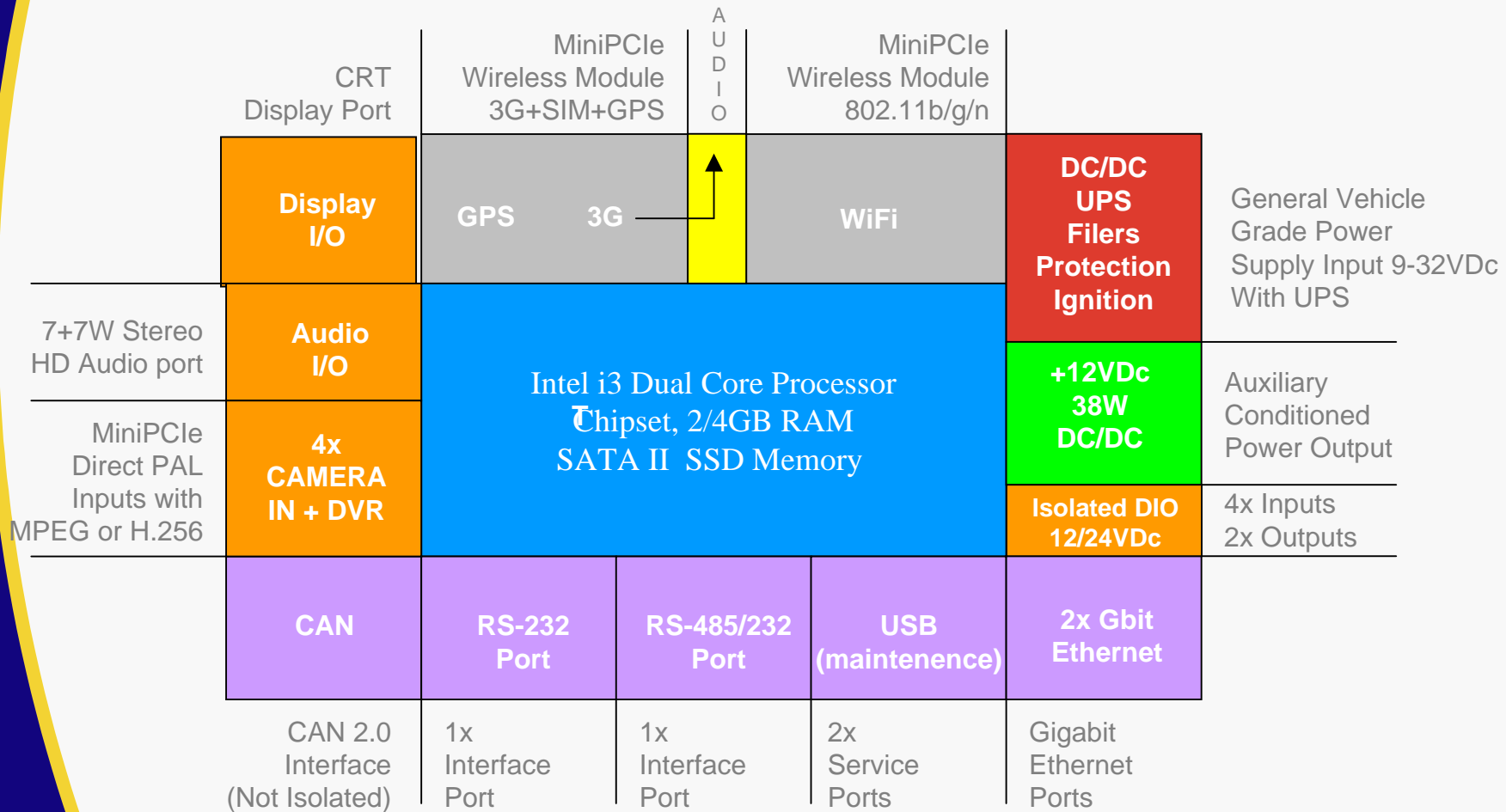
2. Integrated

- Intel i3 Dual Core processor, up to 8GB RAM
- 2x Gbit ETH, 2x Serial, 2x USB, CAN, CRT Output, 7W Stereo Amplifiers, HD Audio
- GPRS/EDGE/3G modem - Data, SMS and Audio Call support, WiFi b/g/n and GPS
- 4x Framegrabber for NTSC/PAL cameras
- 12/24VDc Digital I/O
- +12VDc regulated 38W output for cameras, driver HMI and other devices

3. Future Proof

- Wireless technology agnostic
- Expansion to include additional interfaces with MiniPCIe
- Upgradeable to Include Passenger WiFi router functionality

Block Diagram



Integrated SCU

Power Supply System

1. Active Protection and Filtering Unit

- Activates at 31,5VDc – 0,5V below power supply maximum
- Active Clamp dissipates transients up to 100VDc for 0,5s without switchoff
- Disconnects input power if voltage exceeds 31,5VDc over 0,5s
- Indefinite overvoltage protection to +60VDc
- Reverse voltage protection up to +60VDc
- In case of input power disconnection, computer runs on UPS back-up
- Autorecovery when error condition removed
- Automotive EMC filter
- Proprietary design of Dragontech

2. Power Supply

- 9-32VDc Input (Clamped to 31,5VDc) compliance with nominal +12/24VDc battery systems
- Ignition key control with configurable shut-down delay
- 38W +12VDc Auxiliary regulated output for external peripherals – MMI display, cameras etc.
- Auxiliary power output disconnected during overvoltage error condition
- ISO 7637-2 and ISO 16750-2 compliant with active protection unit

Intelligent BUS-PC

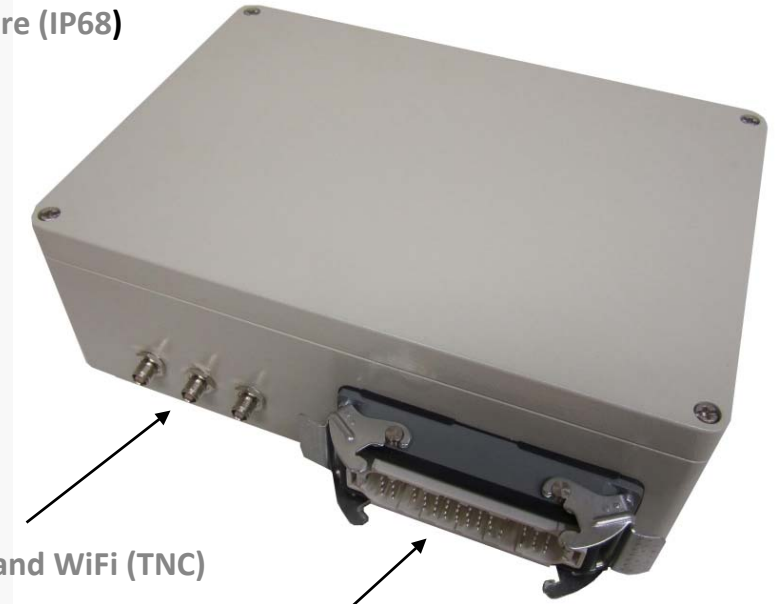
Connectors and Enclosure

Die Cast Aluminium Enclosure (IP68)



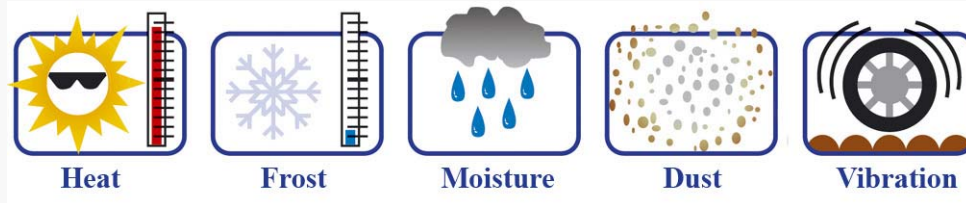
4x NTSC/PAL Camera Inputs (TNC)

Dual Gbit Ethernet (M12)



GPS, 3G and WiFi (TNC)

Power Input and Ignition, +12V Auxiliary Output
2x Serial, 2x USB, CAN, DIO
Audio port (Announcement and Audio Call)
CRT port for external display



At Deal Comp Oy we have the technical experience to design the best possible solution to meet your needs

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