

**ALNAIR AEROSPACE FZC**

Presents

**“EFB by ALNAIR”**



# **EFB Class 2 Solution**

**For AIRBUS Jetliners A318, A319, A320, A321**

# Introduction to “EFB by ALNAIR”

- ALNAIR Aerospace presents EFB Class 2 Retrofit Solution :
  - Available on A320 family, and on demand on any other aircraft,
  - Supports any EFB third-party applications running under Microsoft Windows® XP SP2,
  - Certified through EASA Supplemental Type Certificate (STC) or Mod Approval Sheet (MAS), and any other NAA (on demand),
  - Proposed with DO160D new laptop Tablets,

**Note : Possibility to go step by step from Class1 and then upgrade later to Class2 (See page 14).**

# General: EFB Classes Definition

EFB Hardware Classes are defined in :

- FAA advisory Circular AC-120-76A,
- JAA/EASA Temporary Guidance Liflet, TGL-36

Class 1 : Portable EFB, such as a laptop, with only airplane power interface, which must be off and stowed below 10,000 ft.

EFB by ALNAIR

**Class 2 : Hard Mounted EFB, removable without tools, usable at all phases of flight, with connection to airplane systems through interface module.**

Class 3 : Integrated Design Type Approval features and software

# General: Class 2 EFB applications

- **Electronic Charts**
  - Document handling savings,
  - Weight savings
- **Performance Tools**
  - Fuel costs savings
  - Maintenance costs savings
  - Payload optimization
- **Electronic Logbook**
  - Document handling savings
  - No fault found reduction
- **Electronic Flight Folder**
  - Reduced paper handling, printing & storage
  - Report processing improved efficiency
- **Airport Moving Map (upon EFB software)**
  - Situational awareness of aircraft location
  - Enhanced safety



# General: EFB Benefits to Operators

## **Operational effectiveness increase:**

- Paper reduction in cockpit, weight reduction and clutter cut down
- Documents updates work and cost reduction
- Easy document up-to-date keeping
- Quick flights reporting, allowing issues to be addressed more rapidly
- Reduction of fuel and maintenance costs by using accurate take-off and landing calculations
- Safety improvement with onboard performance calculations
- Payload increase with real-time performance calculations
- Routing decisions improvement by accessing real-time weather information
- Improved Airline Productivity and Pilot efficiency

# “EFB by ALNAIR” in AIRBUS Cockpit

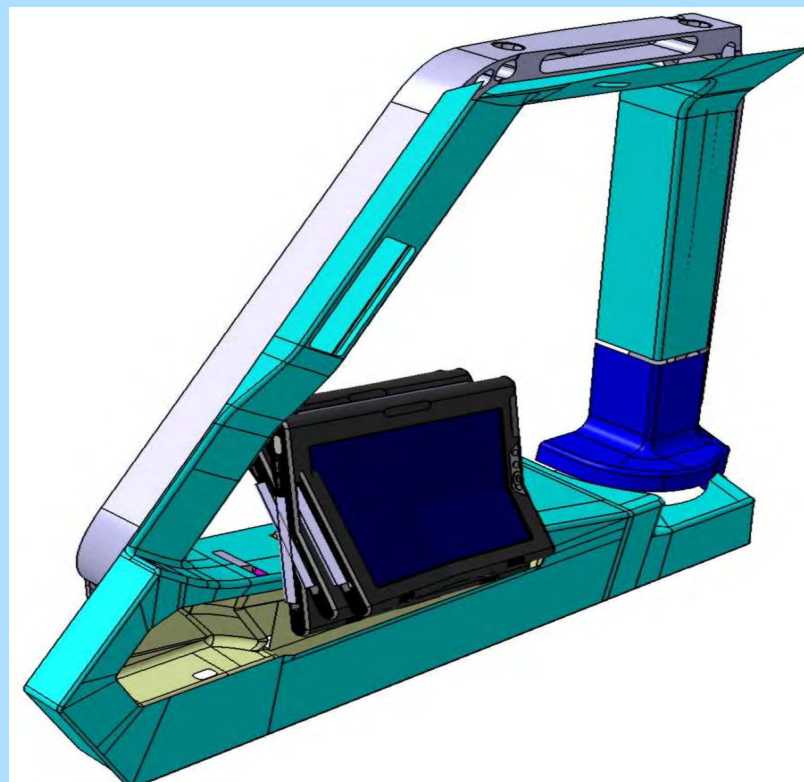
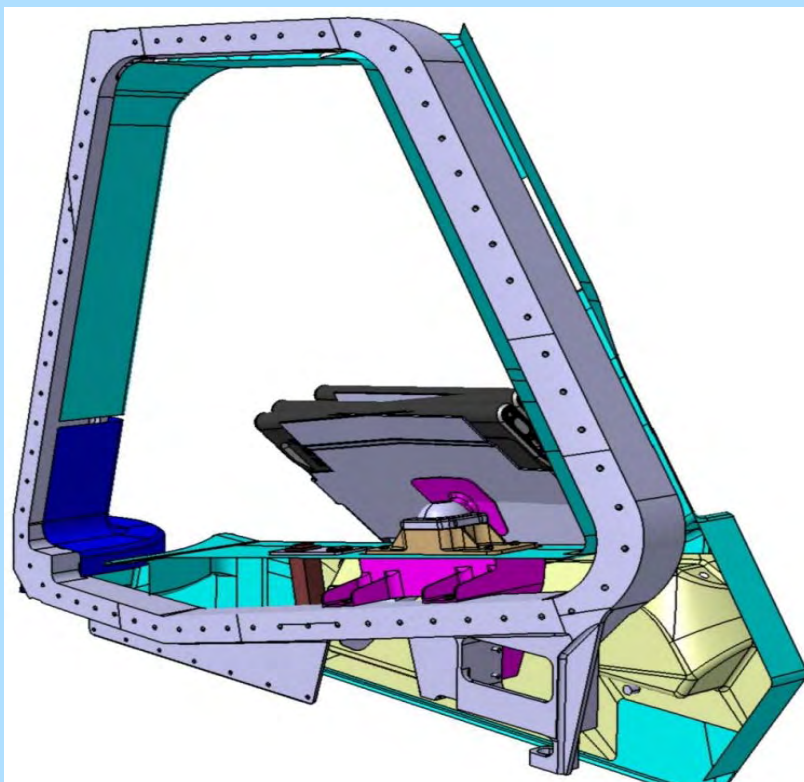
- Hard-side-mounted installation,
- No obstruction to pilot seating and instrument viewing
- PC Tablet Quick release & disconnect (rear connector)





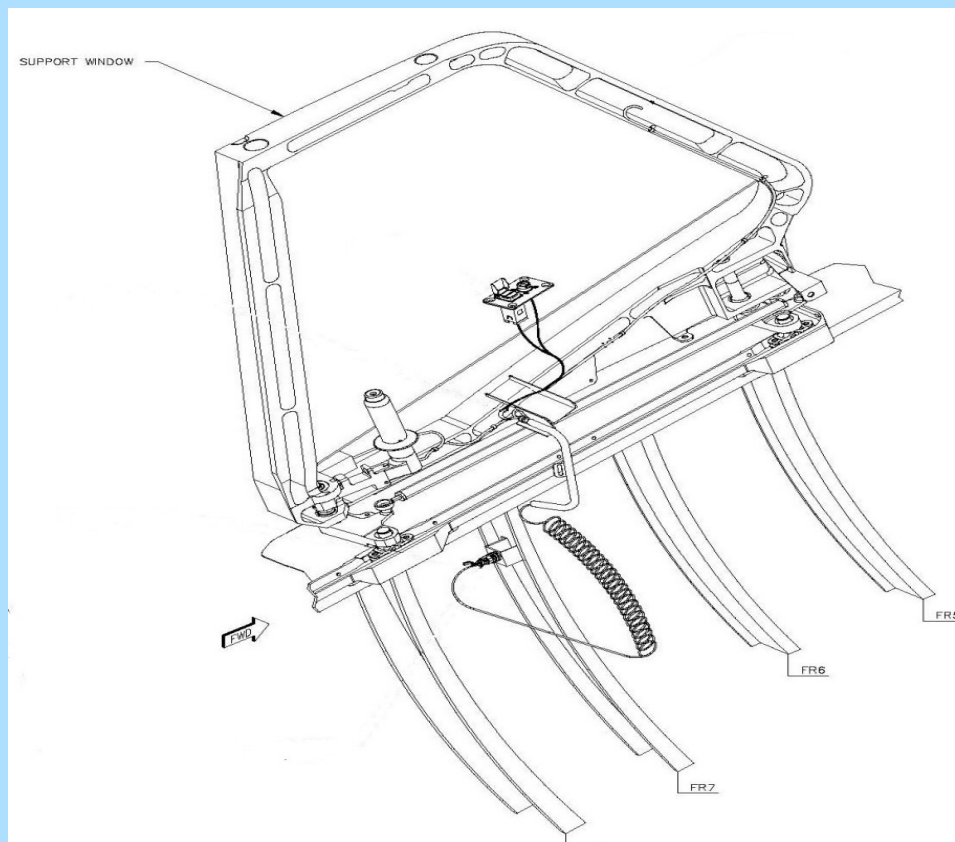
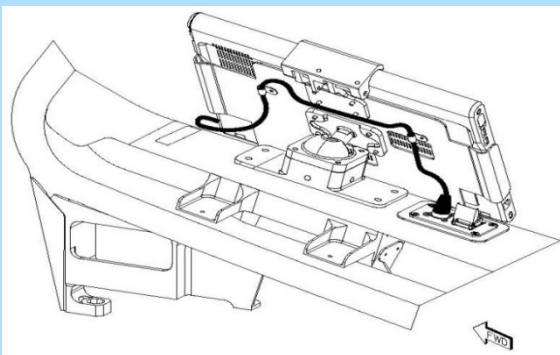
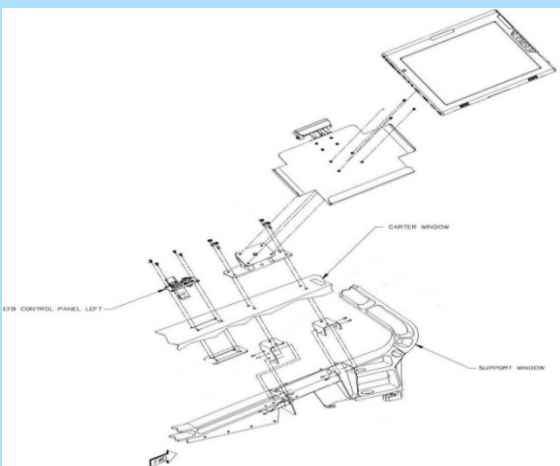
# “EFB by ALNAIR” Design

- Usable during all phases of flight
- Readable under a variety of lighting condition
- DO160 PC Tablet usable on or off the cockpit



# “EFB by ALNAIR” Design

- Rugged design to withstand harsh conditions,
- Thoroughly designed for optimal ergonomics
- Easy retrofit installation





# “EFB by ALNAIR” Deliverable

- **Kit** for a dual (LH & RH) EFB hardware installation:
  - structural parts, brackets, mounts, clamps,
  - electrical power and data cables, connectors, breakers
  - 2 Tablet PC J3500 with Windows® XP PC Tablet,
  - Additional Kits for options, (if ordered)
- **Technical Data**
  - Service Bulletin and associated installation drawings,
  - Ground/Flight Test Procedures
  - Supplement Manuals (WDM, MPD, WBM, ELM)
  - PC Tablet data (user manual) as supplied by OEM.
- **Certification**
  - EASA STC or MAS (Minor Modification) through DOA.
  - EASA Form 1 for kit approval through POA.

# “EFB by ALNAIR” Airborne Equipment (included)



## Tablet PC JC 3500 by Motion Computing

Intel® Core™ i7-640UM vPro™ Processor 1.2 GHz with  
Intel® Smart Cache (4MB of L3 cache, 2 Cores/4 Threads)  
4GB RAM, 128GB Solid State Drive (SSD)  
12.1" AFFS + LED backlight digitizer wide screen (WXGA)  
Dual Touch Technology for finger touch & digitizer pen input  
Windows® 7 Pro (32-bit) or Windows® XP Tablet PC Edition  
Water, dust, splash resistant  
Shock-mounted display and hard drive  
Chemically strengthened glass  
Full daylight/sun  
IP52 rated, MIL-STD-810G

## Onboard equipment tested and qualified DO160

Size: 12.7" x 9.09" x 0.90" (323 x 231 x 23mm)  
Weight: 3.6 lbs. with one battery



See attached (at end) specification for more.

# “EFB by ALNAIR” - Unsurpassed Equipment

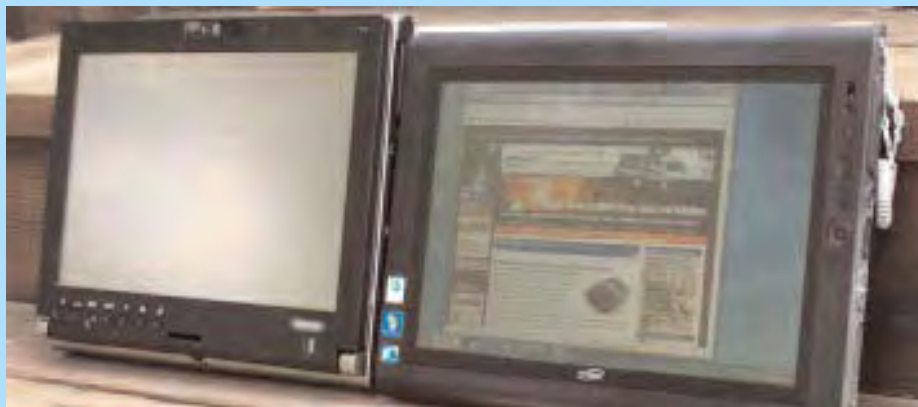


## High Level of Rugged Mobile Performance with the Motion J3500

Optimized with capacitive dual touch option for digitizer and touch input methods, users now have expanded interaction and input options: digitizer, touch, keyboard and voice.

Touch technology includes a host of capabilities to improve mobile productivity:

- The use of two finger gestures simultaneously
- Palm rejection that distinguishes between intentional and false touch
- Pen recognition that prevents pen/touch confusion, enabling an easy switch between input modes.



## J3500 AFFS+ LED Backlight Display

In everyday use, the J3500 display's outdoor performance is excellent.

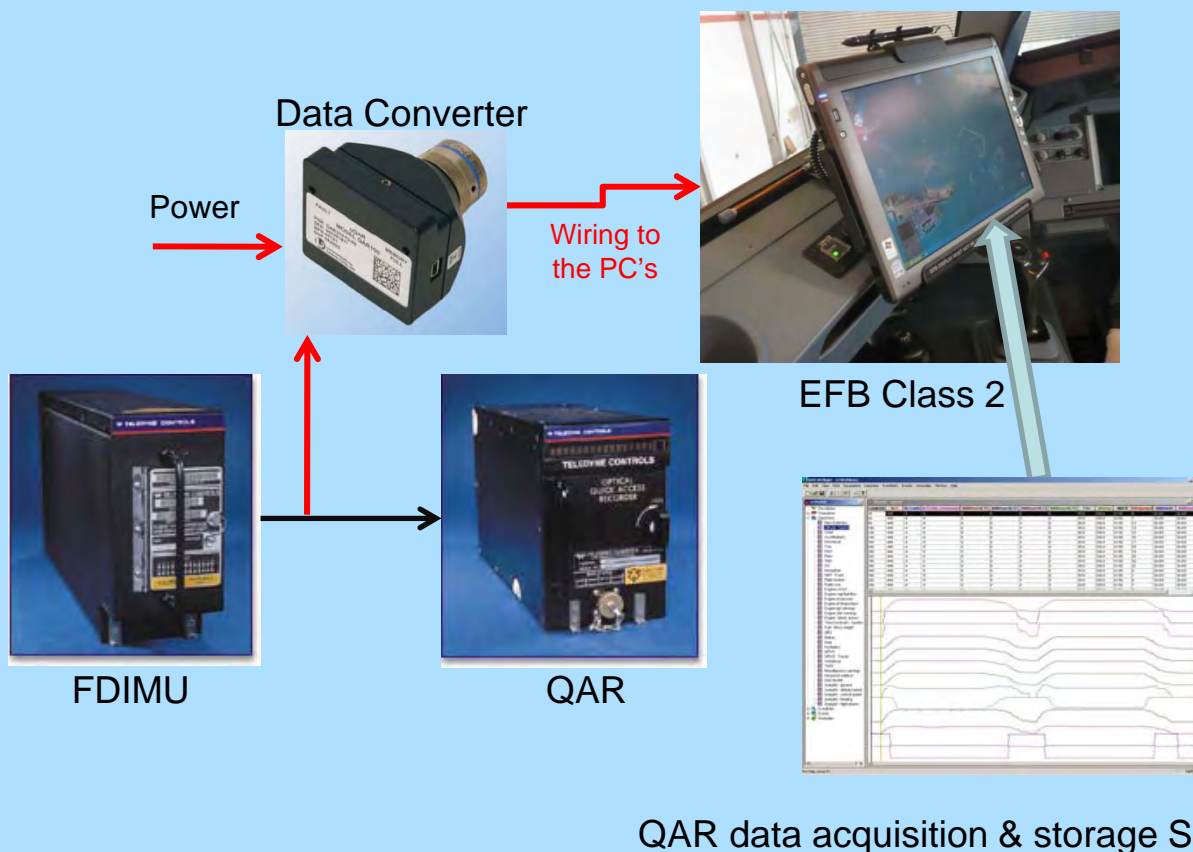
The perfect viewing angle from all directions means you never have to tilt and angle the tablet to see what's on the screen. The display itself excels in eliminating unwanted reflection or diffusion. Where other displays appear matte or milky or are overcome with reflections, the J3500's stays perfectly readable.

In head-on, direct sunlight the display is still readable, here thanks to the inner reflectance of the Hydys LCD.

by **Motion**  
Computing®

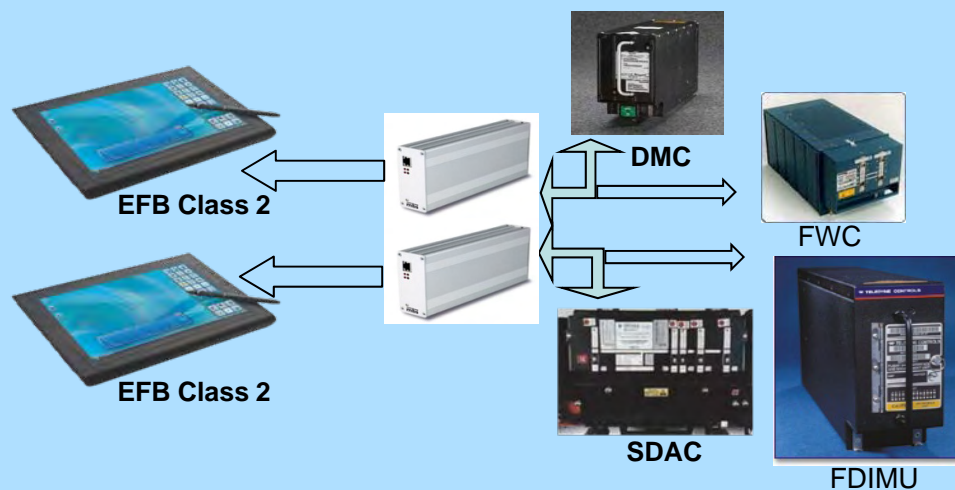
# “EFB by ALNAIR” - Virtual QAR (option)

“EFB by ALNAIR” offers an option to enable QAR data storage on PC's for easy and quick download direct from the PC's in cockpit.



# “EFB by ALNAIR” - Arinc connexion (option)

“EFB by ALNAIR” offers Arinc interface to enable aircraft data download (Moving Map, ...)



Other possible optional interfaces include external data reception (weather, ...) through Satcom or VHF systems.



# EFB Software applications (not included)

“EFB by ALNAIR” provides full graphics and processing support for the third-party industry-leading EFB software applications, running under Windows® XP SP2, such as:

- Airbus LPC,
- AMT Flightman
- Jeppesen Jeppview,
- Lufthansa Systems Lido eFlightBag,
- ...

Electronic Charts are also available from third-party suppliers such as Jeppesen®, Lido (Lufthansa Systems) and EAG (European Aeronautical Group).

# Step by Step Alternative Scenario

## FULL SCENARIO

- **Full EFB Class 2 Package (incl. Options if ordered)**  
Delivery of full SB, Hardware Kit, 2x PC JC3500 & certification

## STEP BY STEP SCENARIO

- **EFB Class 1 solution with PC tablet JC3500**
  - Delivery of 2 x PC JC3500 (D0160 approved for further upgrade into Class 2)
- **EFB Class 2 solution for PC tablet JC3500 already in use**
  - Delivery of SB, Hardware Kit & certification
  - PC to be recertified for EASA Form 1 (already delivered)
- **Options for EFB Class 2**
  - Delivery of SB, Arinc 429 converter Kit & certification

# General Conditions

Delivery : 5 month after PO & Aircraft data

Assistance for retrofit installation : On request

Warranty : One year after delivery

Spares & Support : On request

Sales : [contact@alnair-aerospace.aero](mailto:contact@alnair-aerospace.aero)

# Appendix : J3500 PC Tablet specification



## Motion® J3500 PRODUCT SPECIFICATIONS



- Built-in Camera (optional)**
- Autofocus
  - Up to 3 megapixel image resolution
  - JPG photo format with a resolution up to 2048 x 1536 pixels
  - Illumination light

- AC Adapter**
- 65W universal, 3-pin jack
  - 100-240V ~1.5A, 50-60Hz

- Environmental**
- Temperature
    - Operation:
      - AC Power: +5°C to +40°C (+41°F to +104°F)
      - Battery Power: +5°C to +45°C (+41°F to +113°F)
    - Storage: -20°C to +60°C (-4°F to 140°)
  - Humidity
    - Operating humidity: 8% to 80% without condensation
    - Storage humidity: 8% to 90% without condensation
  - Altitude
    - Operation: sea level 0 to 10K ft; sea level to 15K ft. when configured with SSD storage
    - Storage: sea level 0 to 15K ft.

- Warranty**
- Standard 1-year field-ready warranty
  - Multi-year options available

- Standards**
- ACPI 3.0b compliant

- Safety**
- AS/NZS 3260:1997
  - AS/NZS 60950-1 (1st & 2nd Edition)
  - FCC/ANSI C63.41
  - UL, CUL, CE (IEC/EN60950-1 A11/2009)
  - IEC/EN 60950-1 2nd Edition (2005)
  - CAN/CSA RSS-102
  - FCC OET65 Supplement C
  - ETSI EN 50392
  - LVD (73/23/EEC)
  - EU Directive 2002/95/EC
  - EU Directive 2002/96/EC
  - EU Directive 2006/66/EC and its amendments
  - California Proposition 65
  - Technical Instructions for Safe Transport of Dangerous Goods by Air (ICAO Doc #9284)
  - Emergency Response Guidance for Aircraft incidents involving Dangerous Goods (ICAO Doc #9481)

### Regulatory

- AS/NZS 3548:1995 Class B
- AS/NZS 4771
- AS/NZS 4268
- AS/ACIF S042.1 (WCDMA/HSDPA)
- AS/ACIF S042.3 (WCDMA/HSDPA)
- AS/ACIF S042.1 (GSM/EDGE)
- AS/ACIF S042.3 (GSM/EDGE)
- CAN/CSA ICES-003 Class B
- CAN/CSA RSS-210 Issue 7
- CAN/CSA RSS-132 (1xRTT/EVDO0/EVDOA)
- CAN/CSA RSS-133 (1xRTT/EVDO0/EVDOA)
- CENELEC EN 55011 (CISPR11)
- CENELEC EN 55022 Class B (CISPR22)
- CENELEC EN 55024 (CISPR24)
- CENELEC EN 61000-3-2
- CENELEC EN 61000-3-3
- ETSI EN 301-893
- ETSI EN 300-328
- ETSI EN 301-489-1
- ETSI EN 301-489-3
- ETSI EN 301-489-7
- ETSI EN 301-489-17
- ETSI EN 301-489-24
- ETSI EN 300-330
- ETSI EN 301-511
- ETSI EN 301-908
- FCC Part 15 Subpart B Class B
- FCC Part 15 Subpart C (2.4GHz)
- FCC Part 15 Subpart E (5GHz)
- FCC Part 22.H (1xRTT/EVDO0/EVDOA)
- FCC Part 24 E (1xRTT/EVDO0/EVDOA)
- R&TTE (89/336/EEC) & R&TTE (99/5/EC)



## Motion® J3500 PRODUCT SPECIFICATIONS



- Processor / Cache**
- Intel® Core™ i7-640UM vPro™ Processor 1.2 GHz with Intel® Smart Cache (4MB of L3 cache, 2 Cores/4 Threads) or
  - Intel® Core™ i5-520UM vPro™ Processor 1.06 GHz with Intel® Smart Cache (3MB of L3 cache, 2 Cores/4 Threads)

- Operating System**
- Genuine Windows® 7 Professional (32-bit)
  - Genuine Windows® XP Tablet PC Edition (available through downgrade rights from Windows 7)

- Durability Features**
- Meets MIL-STD-810G
  - IP52 rated
    - Water, dust and splash resistant
  - Shock-mounted display and hard drive
  - Durable Gorilla™ glass (non-touch configurations only)
  - Rubberized coated bottom housing for shock dampening
  - Magnesium-alloy internal frame

- System Software**
- Motion Dashboard control panel
  - Motion QuickNav
  - Motion/Softex OmniPass™ Security software
  - Infineon Security Platform Tools
  - Adobe® Acrobat® Reader
  - Windows Journal
  - Sticky Notes
  - Pen enabled BIOS setup

- Chipset**
- Intel® QM57

- Displays**
- 12.1" AFFS+ LED backlight digitizer wide screen (WXGA) display with dual touch
  - 12.1" TN LED backlight digitizer wide screen (WXGA) display with dual touch
  - 12.1" AFFS+ LED backlight digitizer wide screen "View Anywhere" (WXGA) display with Gorilla™ glass

- Graphics**
- Intel® HD Graphics with dynamic frequency
  - Screen Rotation: 0°, 90°

- Video RAM**
- Maximum 256MB total with Intel Dynamic Video Memory Technology (DVMT)

- HD Audio Controller**
- Realtek ALC272 High Definition Codec

- System Memory**
- Two DIMM slots, upgradeable to 4GB max total memory (2GB x 2)
  - DDR3 memory operating at 800MHz

- System Storage**
- 1.8" Hard Disk Drive (HDD) with 160GB capacity
  - SATA 2.0 - 3.0GB/s
  - 5400 RPM
  - Optional 64GB or 128GB Solid State Drive (SSD)

- Integrated Communications**
- Optional Integrated Mobile Broadband (Gobi™ 2000)
  - Optional GPS capabilities via Gobi™ 2000
    - 1 SIM slot
  - WiFi® 802.11 a/b/g/n
  - 10/100/1000 Ethernet
  - Integrated Bluetooth® 2.1+EDR Module

- Audio**
- Motion Speak Anywhere® noise cancellation technology
  - Multi-directional array microphone design intelligently switches between two of the three microphones based on screen orientation
  - Two integrated speakers

- I/O Ports**
- Microphone-in
  - Headphone-out
  - Two USB 2.0 ports
  - Keyboard connector
  - External VGA port
  - RJ-45 connector (Gigabit LAN)
  - Docking connector
  - DC power in

- Expansion Card Slots**
- One Smart Card slot
  - One Express Card 34 slot

- Security**
- Integrated AuthenTec AES2550 Fingerprint Reader
  - TCO Trusted Platform Module (TPM) 1.2
  - Universal lock slot
  - Computrace® Complete (optional)

- Dimensions**
- 12.7" x 9.09" x 0.90" (323mm x 231mm x 23mm)

- Weight**
- 3.6 lbs. with one battery<sup>1</sup>
  - 4.0 lbs. with two batteries<sup>2</sup>

- Batteries**
- Lithium-ion battery with 30Whr capacity
    - One battery capacity: ~3.3 hours<sup>2</sup>
    - Two battery capacity: ~7 hours<sup>1</sup>
  - Maximum 60Whr

- Battery Charging**
- 1.5 hours for each system battery (Tablet PC on/off)<sup>3</sup>

- System Status Indicators**
- Power on/off/sleep
  - Battery status

- Control Buttons**
- 5-way directional for navigation
  - Three multi-functional programmable
  - Camera
  - Secure Attention Sequence (SAS)

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