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## **EMBEDDED WIRELESS PROCESSING**



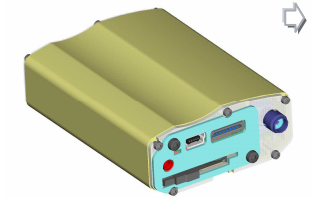
## Fastrack Supreme 10&20

Version 1.2 JGA14DEC2006 [PRELIMINARY: subject to change]

**wavecom**<sup>®</sup>  
*Make it wireless*

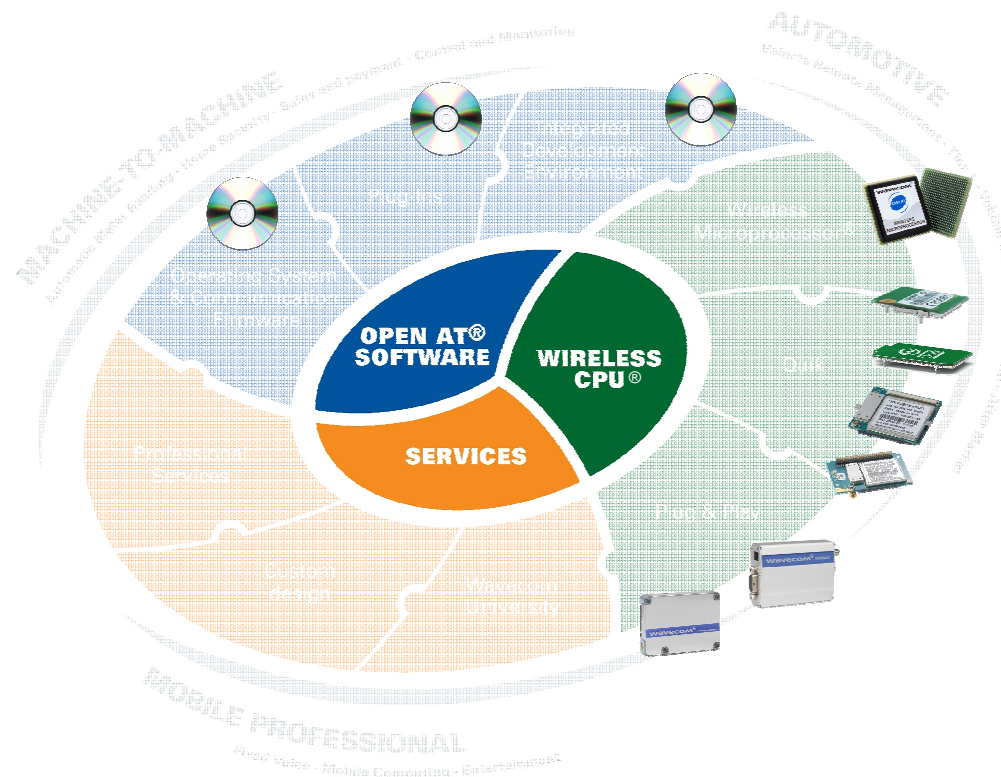


# Wavecom Product Offer



- Our Product Offer
- Customer First
- Wireless CPU®
- Open AT® Software
- Open AT® IDE
- Open AT® Plug-Ins
- Open AT® OS
- Secure Investment
- IPR
- Quality
- What to order
- Pro Services
- In your Product

→ Each product offer in the Wavecom portfolio encompasses 3 core elements and is serving the following markets & applications:



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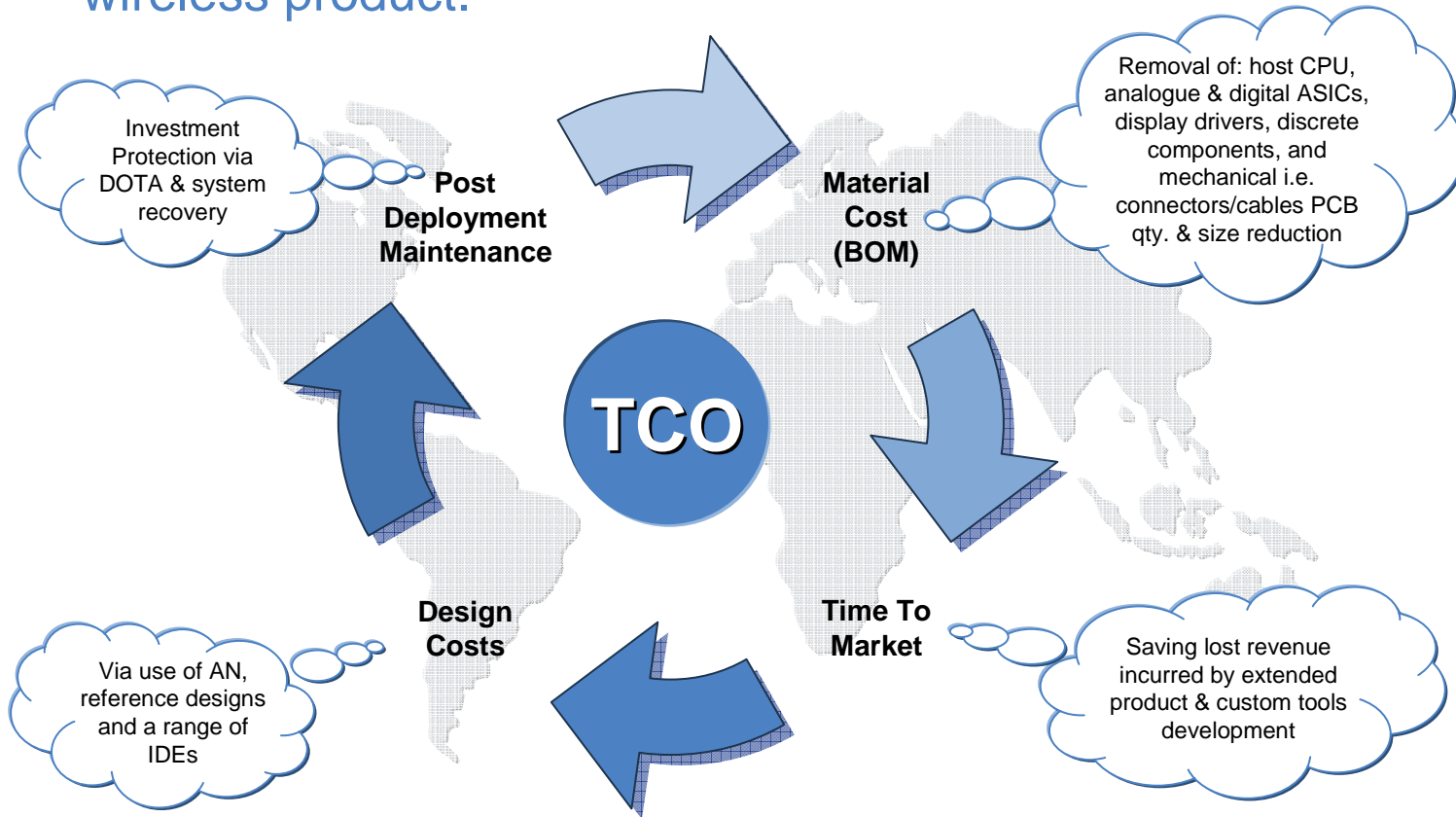


# One customer focussed objective



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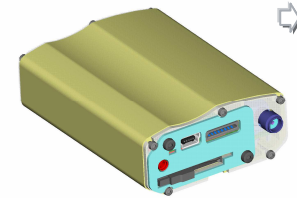
→ To reduce the cost elements that make up the TCO of your wireless product.



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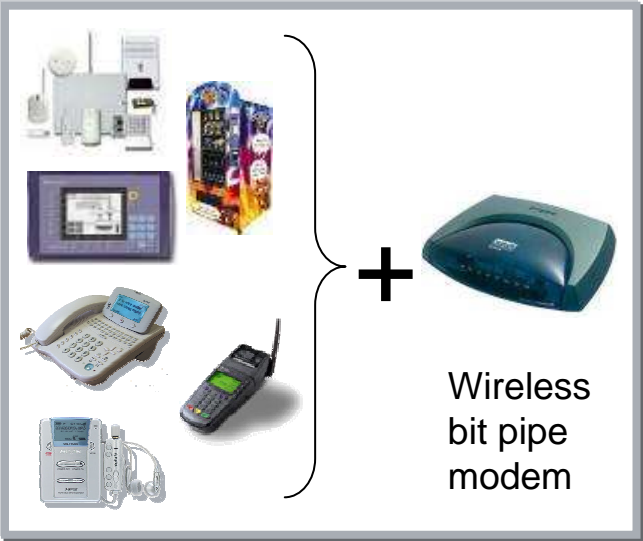
# Wireless CPU® at the core



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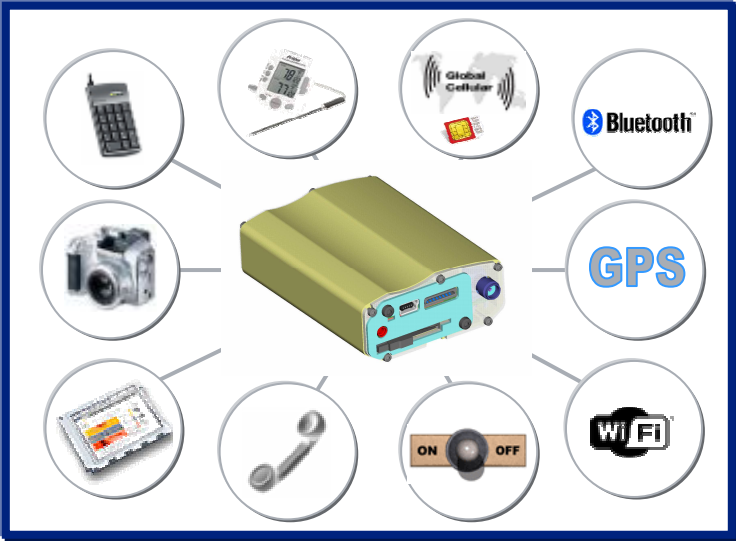
→ What yields the best \*TCO?

Add wireless afterwards?



"I need an unintelligent modem"

**No! Think wireless first**



"I need a programmable Wireless CPU®"

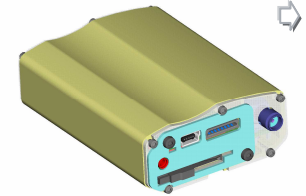


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\*Total Cost of Ownership is a function of material cost, time to market costs & post deployment maintenance costs

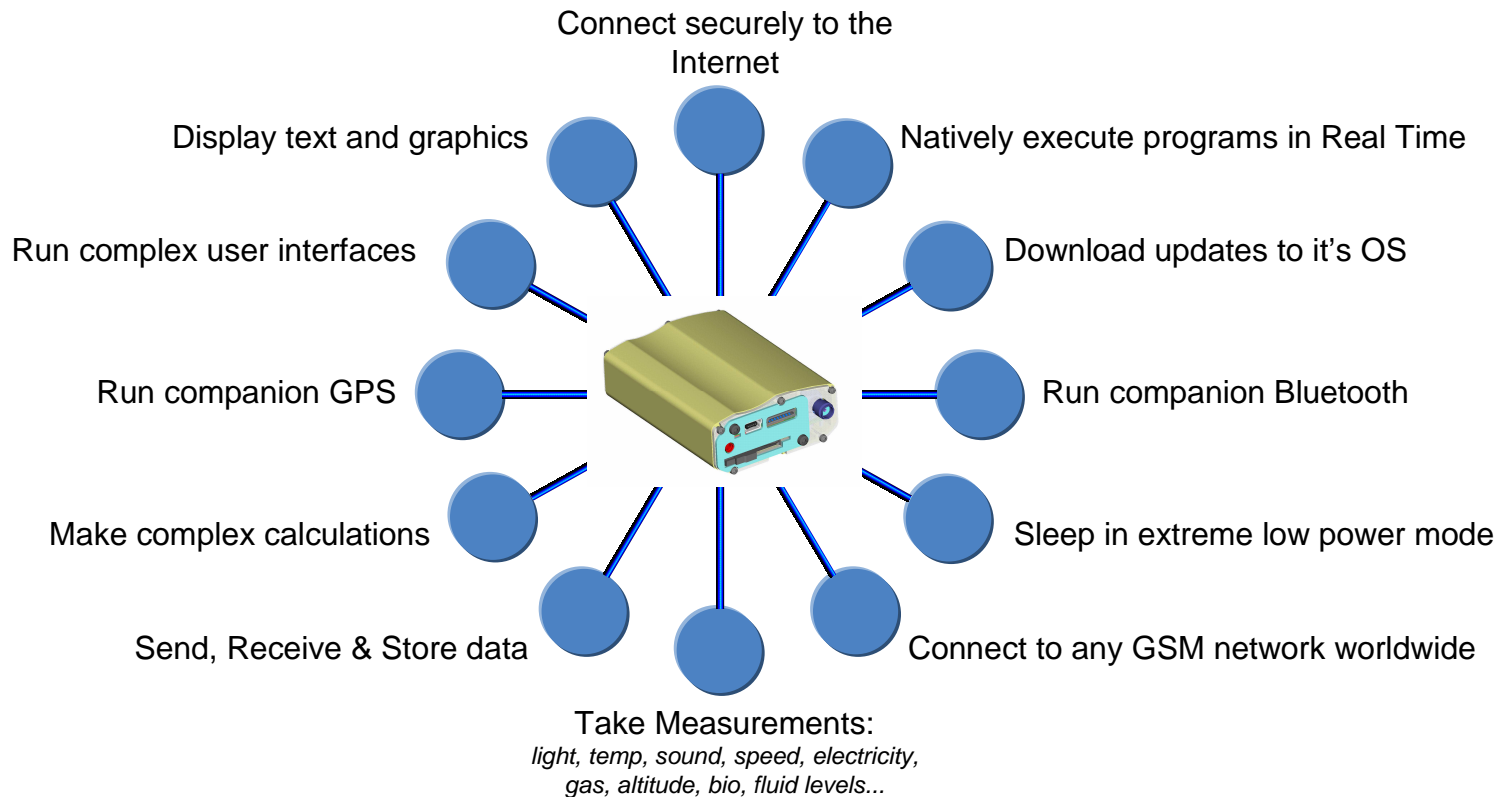


# What can my wireless CPU<sup>®</sup> do?



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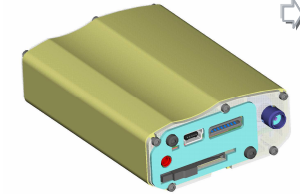
→ “With my Open AT<sup>®</sup> Software Suite, I am the central processor that **LISTENS, THINKS, ACTS**”



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# Wireless CPU Objective



Our Product Offer

Customer First

**Wireless CPU®**

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Open AT® IDE

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## Plug&Play wireless CPU® : Fastrack Supreme 10 & Fastrack Supreme 20

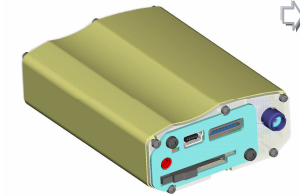
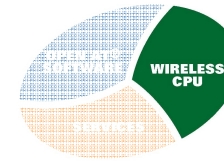
### **Fastrack Supreme 10 & 20 are the latest Plug&Play Family products from Wavecom and is focused on customers needs :**

- Same form factor and interfaces as previous Fastrack Products ensuring a complete backward compatibility
- Bearer evolution path from GPRS to EDGE and on to WCDMA and HSDPA
- Host of new additional IO connectivity or features via expansion modules (IESM)
- Provide an open interface (IES) allowing customers to develop their own expansion modules and customize their product for their specific requirements
- OS allowing Real time native execution of pre-compiled standard ANSI C embedded applications

*Perfect for medium to high volume manufacturing*

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# Fastrack Supreme



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## FASTRACK SUPREME

### Processor

- ARM946, 32 bit, 104 MHz max, 88 MIPS max.
- VariPower & VariSpeed compatible
- Timer resolution 13MHz
- Built in cache memory

### Physical characteristics

- Dimension : 73mm x 54,5mm x 25,5mm
- Weight : 80g
- Temperature range : Operating with DC from -30°C to +85°C
- Mechanical casing : aluminium profiled

### Global Cellular Wireless Radio

- 850/900/1800/1900MHz
- Fastrack Supreme 10 :
  - GSM, SMS, CSD, GPRS, FR/HR/EFR/AMR
- Fastrack Supreme 20 :
  - GSM, SMS, CSD, GPRS, EDGE FR/HR/EFR/AMR

### Electrical characteristics

- Power supply : car voltage range (5,5V to 32V)
- Battery: internal RTC

### Peripheral connectivity

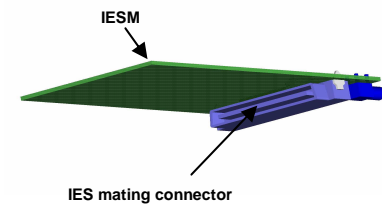
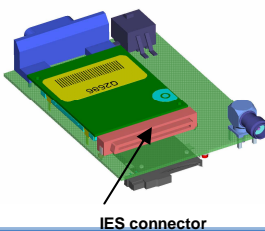
- 4 pins micro fit connector for power supply
- 15 pins SUB HD connector for RS232, Audio, Boot, Reset
- LED indicating operating status
- Extractible SIM card holder
- SMA connector for GSM RF

### Internal expansion socket

- open standard interface
- 50 pins connector supporting following signals :  
USB, GPIOs, UART2, 2 SPI, 1 PCM, 1 DAC, 1 ADC,  
And different power supplies
- located on the mother board

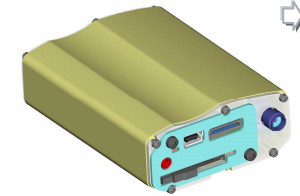
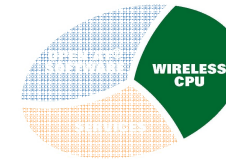
### Internal expansion socket modules

- 3 wavecom expansion cards :
  - IO expansion with mini USB,
  - GPS expansion with mini USB,
  - GPS and mini USB all in one
- additionnal expansion options coming in the future



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# IESM concept



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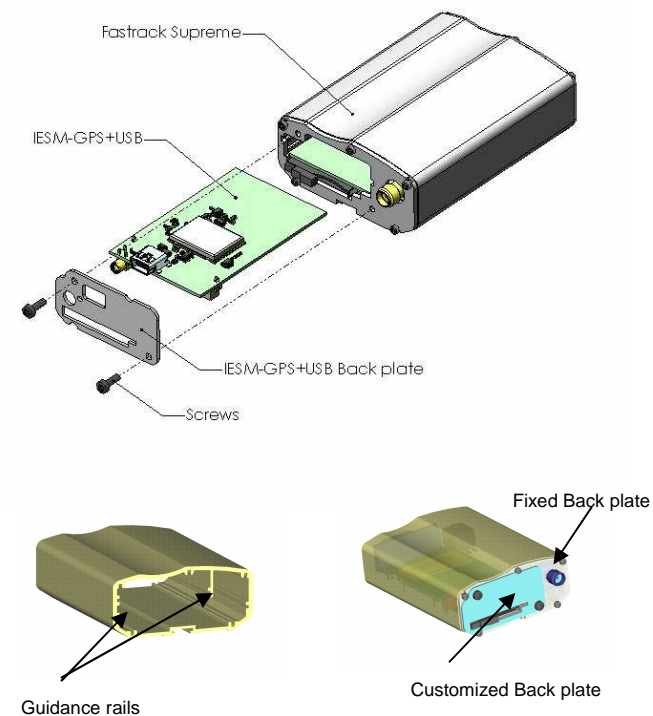
What to order

Pro Services

In your Product

## Fastrack Supreme & IESM

- Wavecom has designed an open interface (IES) for customers to add additional IO connectivity or features like GPS, WiFi, or more..
- Customers are able to develop their own expansion modules or ask wavecom for their IESM options
- IESM is plugged inside Fastrack Supreme without opening the housing
- Housing and back plate are modified in order to accommodate IESM (add guidance rails, back plate in two parts)



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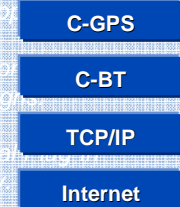




# Open AT<sup>®</sup> Software Suite: FW6.63/OSv4.20



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→ Wavecom's wholly owned, maintained and purpose built environment for executing industrial embedded ANSI C applications on the Wireless CPU<sup>®</sup>.

<b>IDE</b>	 	<p><b>Open AT<sup>®</sup> built on Eclipse™ IDE</b></p> <ul style="list-style-type: none"> <li>Write in industry standard ANSI C for ultimate portability &amp; cross platform flexibility</li> <li>Familiar programming framework</li> <li>Zero cost to start developing</li> </ul> <p style="text-align: right;">V1.04</p>	
<b>Plug-In</b>	 	<p><b>Open AT<sup>®</sup> Plug-Ins</b></p> <ul style="list-style-type: none"> <li>A range of factory configured Plug-In options including:             <ul style="list-style-type: none"> <li>Companion GPS (C-GPS Plug-In)</li> <li>Companion Bluetooth (C-BT Plug-In)</li> <li>Internet Networking (TCP/IP and Internet Plug-Ins)</li> </ul> </li> </ul>	
<b>OS/FW</b>	 	<p><b>Open AT<sup>®</sup> OS</b> supporting:</p> <ul style="list-style-type: none"> <li>native execution of pre-compiled ANSI C applications using the Open AT<sup>®</sup> APIs</li> <li>latest innovation in RTOS</li> <li>investment protection via DOTA I,II</li> </ul> <p style="text-align: right;">V4.20</p>	<p><b>Open AT<sup>®</sup> Firmware</b> supporting:</p> <ul style="list-style-type: none"> <li>Hardware layer drivers</li> <li>Peripheral IO drivers</li> <li>Autoshutdown mode</li> <li>Communications stacks and protocols</li> </ul> <p style="text-align: right;">V6.63</p>

*Comprehensive software for high performance industrial and automotive product design*

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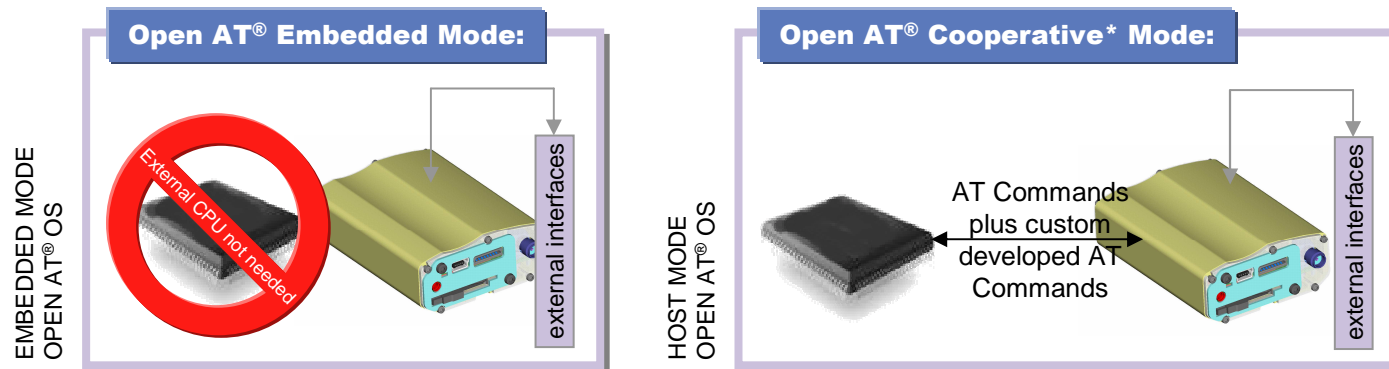
# Open AT<sup>®</sup> Applications



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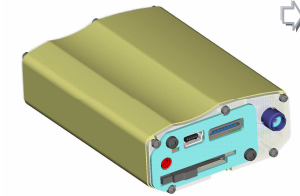
→ **Open AT<sup>®</sup> Software Suite** is the worlds leading **CELLULAR EMBEDDED APPLICATION ENVIRONMENT** for the creation of innovative applications because it allows you to:

- **develop** and **execute** your **standard ANSI C** coded applications **within** the **Open AT<sup>®</sup> OS**,
- **eliminate** external host **processors, analog & digital ASICs, discretes** & associated design costs, **reducing** the **total cost of ownership**,
- **reduce** the physical **size** of the end product,
- **reduce** the **power consumption** using a range of dedicated power modes (VariPower) & processor speeds (VariSpeed),
- **investment protection** via software update using **DOTA** to release new features or perform carrier network interoperability upgrades or correct software issues,
- **secure** your **investment** in your **intellectual property** via copy and reverse engineering protection,
- **develop** new embedded **features** independently of Wavecom while other suppliers have to make new product offers.



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# Open AT<sup>®</sup> built on Eclipse<sup>™</sup>



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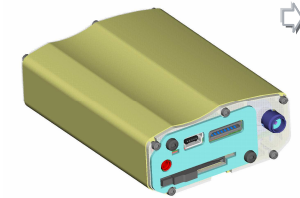
→ The Open AT<sup>®</sup> built on Eclipse<sup>™</sup> V1.04 is an IDE providing a rich set of easy to use graphical tools:

- 1  **Framework**
- 2 **Open AT<sup>®</sup> Project Wizard**
- 3 **CDT Eclipse Plug-In**
- 4 **Open AT<sup>®</sup> Settings Application**
- 5 **Remote Task Monitor**

Zero cost investment to start developing your software applications

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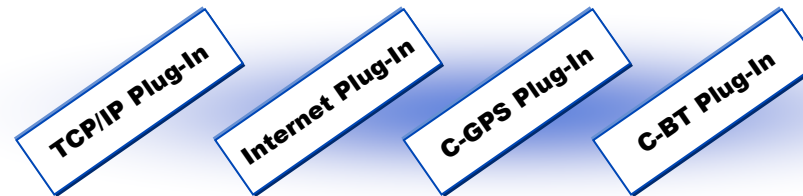
# Open AT<sup>®</sup> Plug-In Options 1/2



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→ Flexibility to select the options you need depending on the type of product you're designing. Just select the pre-packaged Series you need at order time.

Open AT<sup>®</sup> Plug-In



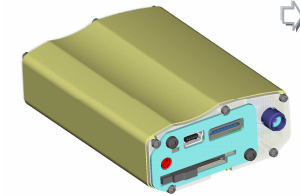
Plug-In combinations to order:

<b>Series431</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	
<b>Series430</b>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	
<b>Series416</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>
<b>Series411</b>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>		
<b>Series408</b>	<input checked="" type="checkbox"/>			

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# Open AT<sup>®</sup> C-GPS Plug-In



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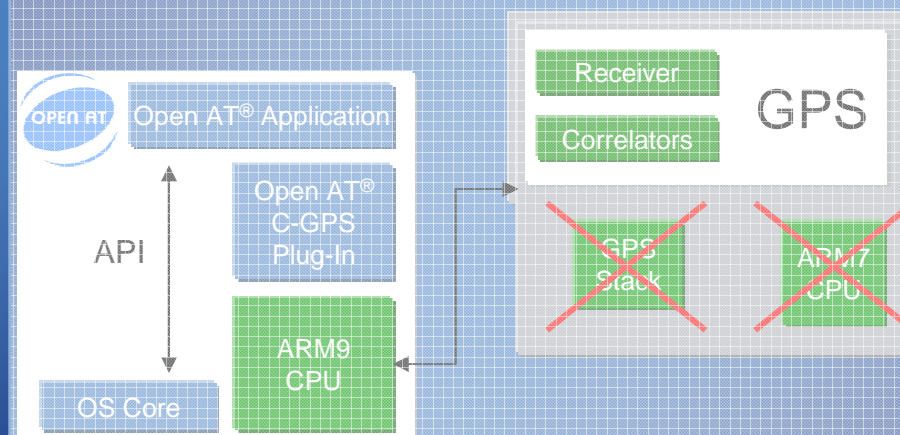
## → Locate it.

- Efficiency by design:
- Architecture
  - Power consumption
  - Cost
  - Size: matchbox capable!



- High performance  
Global tracking solution  
Choice from eRide:
- Chipset
  - Module (9x10mm) or (12x17mm)
- Ultimate flexibility

## Best: Wireless CPU<sup>®</sup> & C-GPS Plug-In



**Wavecom**  
**Wireless CPU<sup>®</sup>**  
(Fastrack Supreme 10&20)

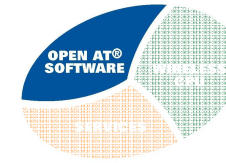


*\*cold: 40s typ, warm: 5s min, hot: 3s typ. Sensitivity: -158dBm, Accuracy 7m outdoor CEP 95%*

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# Open AT<sup>®</sup> Operating System 4.20



Our Product Offer

Customer First

Wireless CPU<sup>®</sup>

Open AT<sup>®</sup> Software

Open AT<sup>®</sup> IDE

Open AT<sup>®</sup> Plug-Ins

Open AT<sup>®</sup> OS

Secure Investment

IPR

Quality

What to order

Pro Services

In your Product

→ At the heart of the **Wireless Microprocessor<sup>®</sup>** beats the powerful **Wavecom Open AT<sup>®</sup> Operating System v4.20** and **firmware v6.63** that provides:

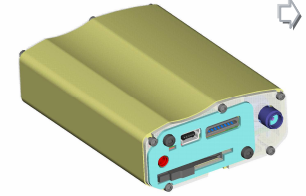
- **Open AT<sup>®</sup>** application execution
  - **Native** execution of precompiled **ANSI C** applications
  - More than 450 APIs for developer flexibility
- **Real time OS**
  - Management of 2 interrupts with latency <1ms
- **VariPower** and **VariSpeed** (26-104MHz clock) modes
- **DOTA I,II**
- Serial port Autoshtutdown
- GPS and WIP AT commands
- High quality audio **echo cancellation**, **noise reduction**
- **VDA2A** analogue GSM audio compliance



\*refer to application note

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# Investment Protection



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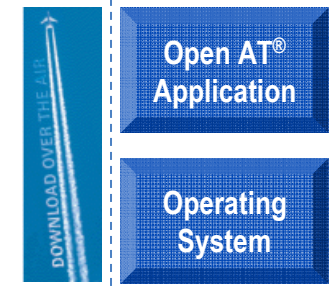
What to order

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In your Product

## → DOTA Type I : Open AT® Application

- Update your applications remotely in the field.
- Save costs of visiting or recalling product from the field.
- Use it to deliver new features or rectify abnormalities.



## → DOTA Type II : Wavecom Operating System

- Allows you to download the entire Wavecom Operating System over the air to maintain interoperability with evolving cellular networks.

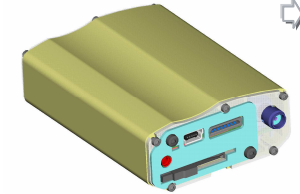
*\*Optional extra embedded engine available on request*

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# Intellectual Property



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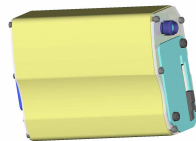
- When choosing a cellular solution supplier, it is critical that the GSM\* IPR is covered.
- **The Law:** *“Any product manufacturer integrating GSM technology shall pay royalties owed to third parties in respect of essential Intellectual Property Rights to Patent Holders”*
- This can represent **up to 20%** of the selling price of your final product
- Our selling prices include IPR coverage: our customers do not have to pay anything more:

## AN IPR INCLUSIVE OFFER

- Extreme “low cost” module manufacturer companies do not have this coverage in their product:

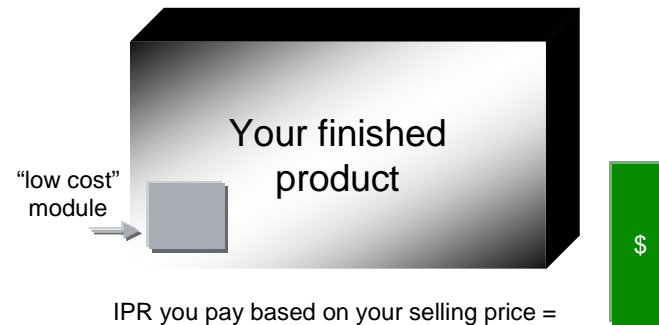
**OEM manufacturers using module suppliers not covering IPR cannot export to Europe and the USA**

CHOICE 1: BUY A WAVECOM PRODUCT THAT INCLUDES IPR  
**NO MORE TO PAY**



IPR included in your buying price =

CHOICE 2: BUY A PRODUCT THAT DOES NOT INCLUDES IPR  
**PAY THE IPR BASED ON YOUR SELLING PRICE**

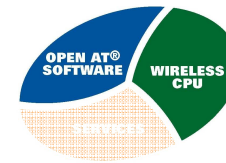


\*CDMA IPR also covered for CDMA products

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# Quality Assurance & Environment



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→ All Wavecom products are manufactured at Solectron, Suzhou which is certified to:

- ISO 14000

→ Wavecom is ISO9001:2000 certified by SGS (Reg#: FR05/1246...)



→ Automotive dedicated line with automotive controls

- line certified to ISO/TS16949.
- IPC A 610C applied with highest quality level
- Full Automotive Environmental Qualification
- Full PPAP
- IMDS declaration



→ Product Certified to R&TTE directive, CE marking

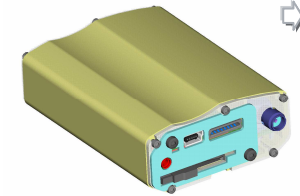
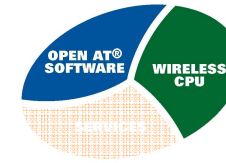
→ Software: CMMI software creation process compliancy



PPAP: Production Part Approval Process. IMDS: International Material Data System.  
 RoHS: Restriction of Hazardous Substances, an EU Green Policy Directive.  
 CMMI: Capability Maturity Model Integration, an improvement process applied to software creation.



# Order what you need



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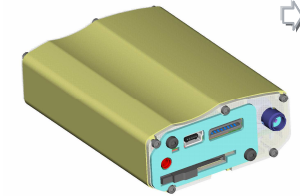
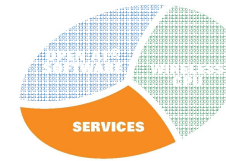
- The Fastrack Supreme exists in 2 versions :
  - Fastrack Supreme 10 supporting class10 GPRS
  - Fastrack Supreme 20 supporting class10 Edge
- The Open AT® OS 4.20/ FW6.63 is required to use the Fastrack Supreme10 & 20
- Open AT® Plug-Ins (Select the Plug-In series combination from the range available)
- Optional IESMs are available to be ordered apart with specific references :
  - IESM-IO+USB
  - IESM-GPS+USB
  - IESM-IO+USB+GPS
- A professional service “IESM Fastrack Supreme Assembly” will be proposed to deliver customers Fastrack Supreme with IESM plugged-In.
- Development Kit containing :
  - Open AT® SDK,
  - 1 x Fastrack Supreme 20,
  - 1x IESM-IO+USB+GPS,
  - 1x spare standard back plate,
  - accessories (handset, serial cable, IO cable, quad band GSM antenna, GPS antenna)
  - 1x power cable,
  - 1x power supply,
  - 1x CD documents

*Not actual dev kit*

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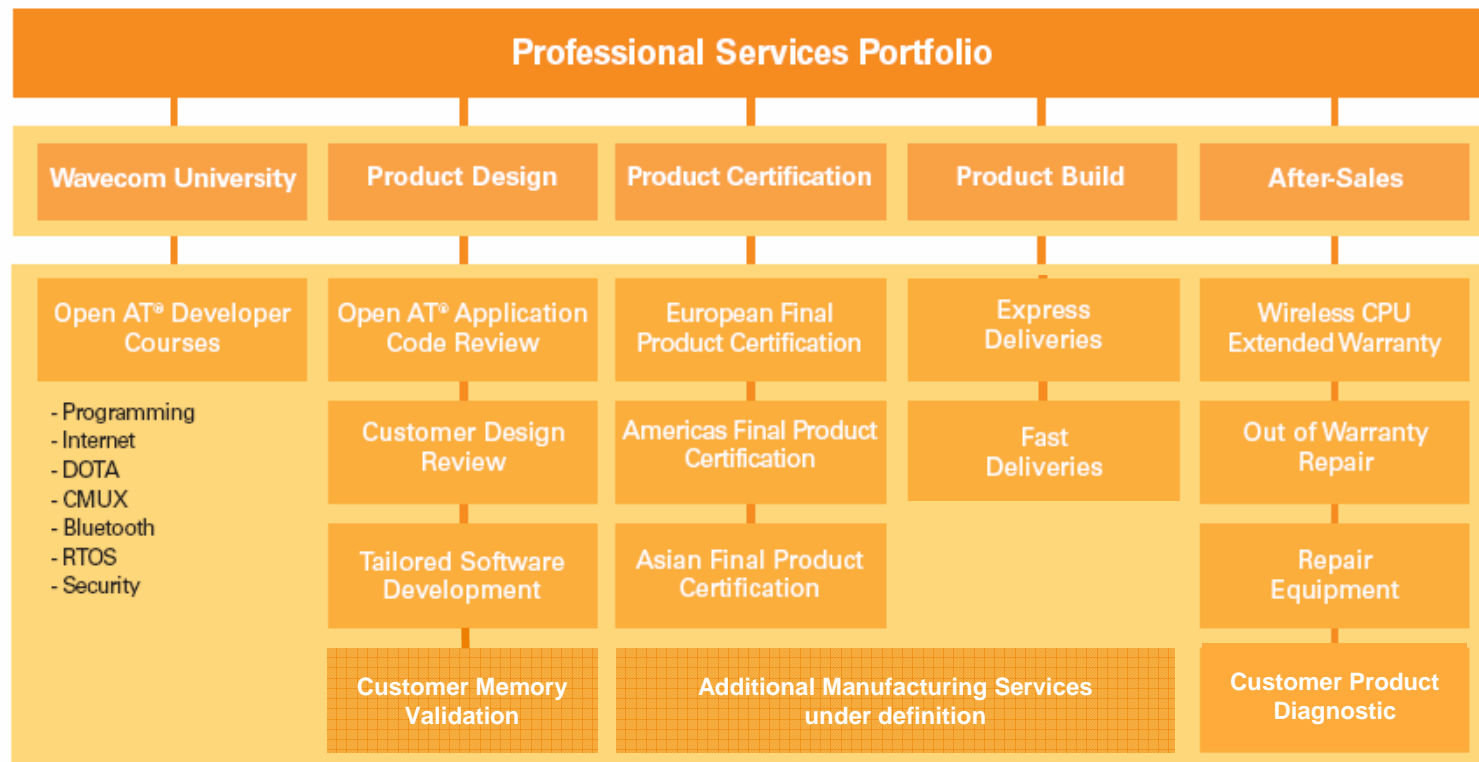


# Wavecom Professional Services



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- Pro Services**
- In your Product

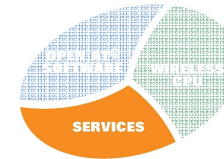
→ Wavecom provide a range of professional services to help customers deliver products to market in record time.



Contact your Wavecom account manager for details and pricing.  
Additional manufacturing services will be available at launch.

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# Wavecom Free Support



- Our Product Offer
- Customer First
- Wireless CPU®
- Open AT® Software
- Open AT® IDE
- Open AT® Plug-Ins
- Open AT® OS
- Secure Investment
- IPR
- Quality
- What to order
- Pro Services
- In your Product

→ Wavecom's wireless expertise is available for you to maximise your potential...

→ Extensive Online Support

- Sales & Marketing materials
- Extensive FAQ database
- Technical Documentation
- Carrier certification
- Type approval certificates & reports\*
- Free Application Notes on website\*
- Latest Open AT® OS releases\*
- Open AT® IDE downloads\*
- Automatic updates via mailing list subscription\*

Application Note Examples

Generic - New AN Template

Number	Title	Category	Download
A001	Call Management with Keypad	Basic	
A002	Hands Free Speaker Phone	Intermediate	
A003	-	-	-
A004	Floating Point Arithmetic Library	Basic	
A005	Auto TCP Socket Data connection	Intermediate	
A006	Graphical Engine & LCD Driver	Intermediate	

Generic - Original AN Template

Number	Title	Category	Download
EOS005	Creating an Open AT 2.x Library	Basic	
EOS007	Porting Open AT application from Win library to ADL library	Intermediate	
EOS008	Modified AT commands and API Interfaces for UART2	Basic	
EOS009	Suspending & resuming Open AT applications with interrupt mode	Basic	
EOS010	Steps to create a DWL file for Open AT ADL application	Basic	
EOS011	Using FCM flow in an Open AT application	Basic	
EHW016	Bluetooth Interface for AT x35	Advanced	
EHW001	Q25 Dead Reckoning	Basic	
EHW002	CAN V2.0B Interface	Intermediate	
EHW003	USB 1.1 Interface	Intermediate	
EHW004	USB 2.0 Interface	Intermediate	

[www.wavecom.com/support](http://www.wavecom.com/support)

→ Online Wavecom Wireless Developers Forum

- Free community in which to openly discuss any aspect relating to Wireless CPUs, Wavecom OS, including Open AT®. Open to all Wavecom customer developers.

[www.wavecom.com/forum](http://www.wavecom.com/forum)

\*Requires customer login account (request from your sales manager)

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