



## Infineon's solutions for multicopters

Introducing a new cost effective system solution to ensure excellent user experience

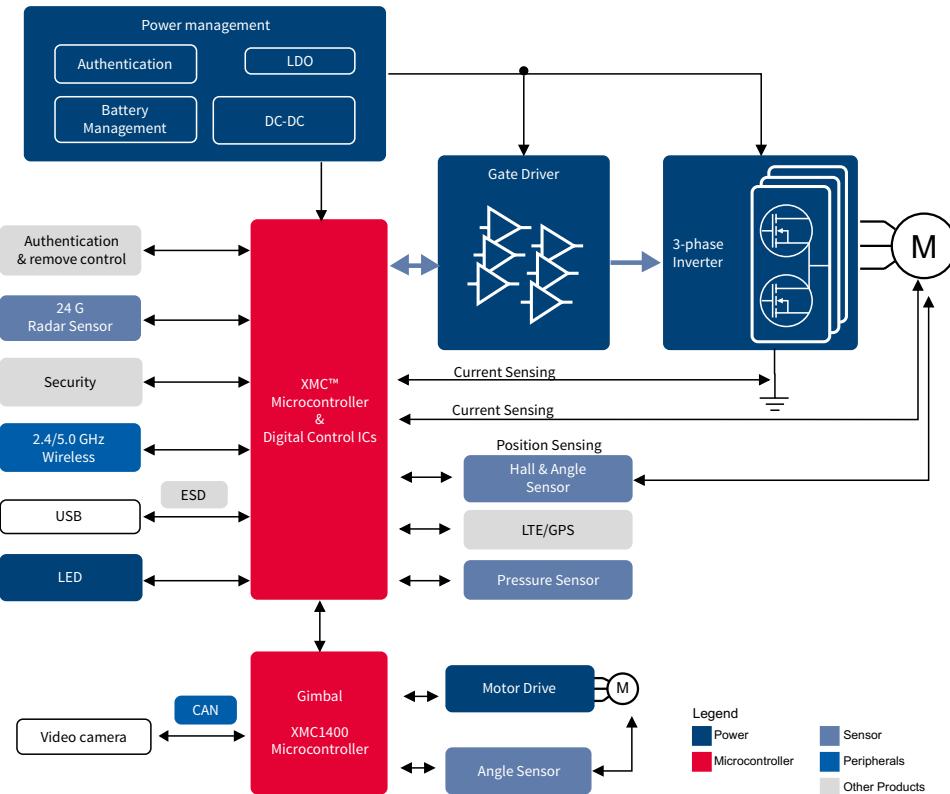
[www.infineon.com/multicopter](http://www.infineon.com/multicopter)



# Industry-leading multicopter solutions

Commercial multicopters have come a long way in recent years, evolving from toys to coastal and event mapping sophisticated programmable aircrafts. This provides challenges and opportunities for multicopter manufacturers.

Infineon provides cost effective system solutions for this rapidly growing market while providing an excellent experience and meeting the requirements of the end user, such as lighter weight, longer flying time, safe, reliable, etc.



Benefits	Offer
<b>Development effort and cost reduction</b>	<ul style="list-style-type: none"> <li>With no or little experience in motor control, customers can implement the iMOTION™ motor control IC and take flight</li> <li>Project development can be reduced up to 30% by using reference designs and the DAVE™ platform for Microcontroller programming</li> </ul>
<b>Authentication</b>	<ul style="list-style-type: none"> <li>Infineon's solutions enable authentication of components connected to the system</li> <li>Guaranteed safety and protection of the product, avoiding liability</li> </ul>
<b>Ease of precision control for flight and data</b>	<ul style="list-style-type: none"> <li>Through the benefits of multifunction sensors and algorithm, the user can experience an easy, stable, smooth and accurate control of the multicopter</li> <li>Closed loop control of gimbal motor, sensors enhanced camera stability and data transmission when recording video</li> </ul>
<b>Lighter</b>	<ul style="list-style-type: none"> <li>The highly efficient components and effective flight control can make the multicopter lighter, which results in longer flight time</li> </ul>
<b>Collision avoidance</b>	<ul style="list-style-type: none"> <li>24 GHz can be used to measure the presence of objects, measure range, speed/velocity, determine proximity and determine the position of objects</li> </ul>
<b>Broader portfolio</b>	<ul style="list-style-type: none"> <li>Infineon can provide a broader portfolio of semiconductor components for multicopters</li> </ul>

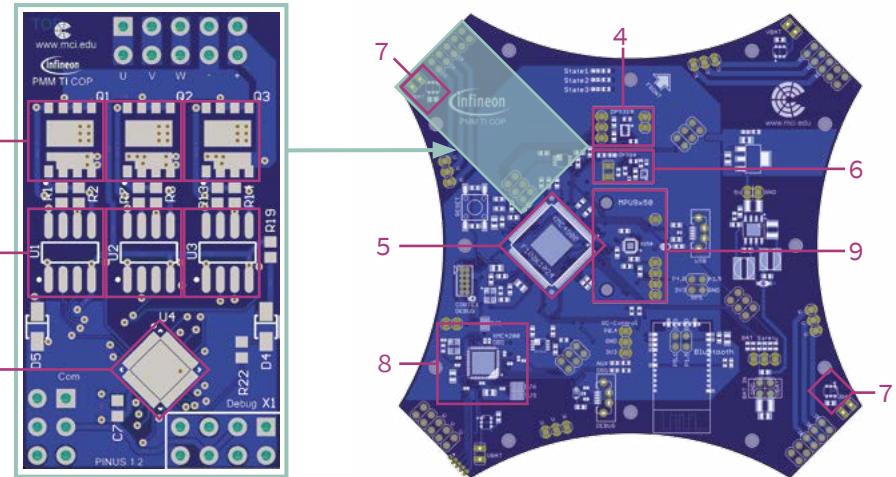
# Reliable and durable solutions for多旋翼

Flight control					ESC		
Microcontroller	Sensor	DC-DC module	LDO	Low noise amplifier (LNA)	Microcontroller	Sensor	Intelligent power module
<ul style="list-style-type: none"> <li>XMC4000 family</li> <li>Pressure Sensor: DSP310</li> <li>24 G Radar Sensor: BGT24MR</li> </ul>	<ul style="list-style-type: none"> <li>Pressure Sensor: IFX90121ELV50</li> <li>IFX91041EJV33</li> <li>IFX91041EJV50</li> </ul>	<ul style="list-style-type: none"> <li>IFX90121ELV50</li> <li>IFX91041EJV33</li> <li>IFX1763XEJV33</li> </ul>	<ul style="list-style-type: none"> <li>IFX1117ME</li> <li>IFX54441EJV</li> <li>IFX1763XEJV33</li> </ul>	<ul style="list-style-type: none"> <li>LTE: BGA7H, BGA7M, BGA7L</li> <li>GPS: BGA524N6, BGA824N6</li> <li>Wi-Fi: BGA7M1N6, BGA7H1BN6</li> </ul>	<ul style="list-style-type: none"> <li>XMC1300 family</li> <li>iMOTION™ IRMCK099</li> </ul>	<ul style="list-style-type: none"> <li>Hall Sensor: TLI4961</li> <li>Angular Sensor: TLI5012B</li> </ul>	<ul style="list-style-type: none"> <li>IRSM005-800MH</li> <li>IRSM836-084MA</li> </ul>
Security	Accessory authentication	Joystick	Interface protection Diodes	LED Driver	MOSFET Gate Driver	Dual N-Channel Power MOSFET	Low voltage MOSFETs
<ul style="list-style-type: none"> <li>OPTIGA™ Trust E (SLS 32AIA)</li> <li>OPTIGA™ TPM</li> </ul>	<ul style="list-style-type: none"> <li>OPTIGA™ Trust SLS 10ERE</li> </ul>	<ul style="list-style-type: none"> <li>3D Magnetic Sensor: TLV493D</li> </ul>	<ul style="list-style-type: none"> <li>ESD102 series</li> </ul>	<ul style="list-style-type: none"> <li>BCR450</li> <li>BCR321U</li> <li>BCR421U</li> </ul>	<ul style="list-style-type: none"> <li>IRS2301S</li> <li>2EDL05N07PF</li> <li>IRS23365</li> <li>PX3517</li> </ul>	<ul style="list-style-type: none"> <li>IR3742, etc.</li> <li>BSC0925ND, etc.</li> </ul>	<ul style="list-style-type: none"> <li>OptiMOS™ 5 series</li> <li>StrongIRFET™ series</li> </ul>
Charger			Battery management				
High voltage MOSFETs	Low voltage MOSFETs	Stand alone PWM Controller	Authentication IC		Cell balancing		Low voltage MOSFETs
<ul style="list-style-type: none"> <li>CoolMOS™ CE 600 V – 650 V in TO-220, DPAK, IPAK</li> </ul>	<ul style="list-style-type: none"> <li>OptiMOS™ 5 40 V – 80 V in TO-220, SuperSO8</li> <li>StrongIRFET™ 40 V – 75 V</li> </ul>	<ul style="list-style-type: none"> <li>ICE2QS03G</li> </ul>	<ul style="list-style-type: none"> <li>ORIGA™ SLE95050</li> </ul>		<ul style="list-style-type: none"> <li>OptiMOS™ 30 V in SuperSO8, S308, DirectFET™</li> <li>StrongIRFET™ 30 V</li> </ul>		<ul style="list-style-type: none"> <li>OptiMOS™ 5 in SuperSO8, S308, DirectFET™</li> <li>StrongIRFET™ 40 V – 80 V</li> </ul>
Gimbal control							
Microcontroller	Angular Sensor	LDO	CAN Transceiver	Low voltage MOSFETs	Dual N-Channel Power MOSFET	MOSFET Gate Driver	
<ul style="list-style-type: none"> <li>XMC1400 family</li> </ul>	<ul style="list-style-type: none"> <li>TLI5012B</li> </ul>	<ul style="list-style-type: none"> <li>IFX1117ME</li> <li>IFX54441EJV</li> <li>IFX1763XEJV33</li> </ul>	<ul style="list-style-type: none"> <li>HS CAN IFX1050G</li> <li>IFX1050GVIO</li> </ul>	<ul style="list-style-type: none"> <li>OptiMOS™ 5 25 V – 30 V</li> <li>StrongIRFET™ 20 V – 30 V</li> </ul>	<ul style="list-style-type: none"> <li>IRFH8363TRPBF, etc.</li> </ul>	<ul style="list-style-type: none"> <li>IR2101STRPBF</li> </ul>	

# XMC4500 multicopter demoboard

Components	Offer
Flight controller source code	<ul style="list-style-type: none"> <li>Open source IMU using standard interfaces/connectors to work with any commercial electronic speed control (ESC) and radio control (RC)</li> <li>Software is used for academic education in several universities and hosted from MCI Innsbruck</li> </ul>
Inertial measurement unit (IMU)	<ul style="list-style-type: none"> <li>Onboard IMU Invensense MPU9250</li> <li>9-axis and 6-axis mode</li> </ul>
DPS310	<ul style="list-style-type: none"> <li>High resolution pressure sensor for altitude stabilization</li> </ul>
Authentication	<ul style="list-style-type: none"> <li>ORIGA™ onboard</li> <li>Demonstrator for ORIGA™ – XMC™ coupling</li> </ul>
GPS	<ul style="list-style-type: none"> <li>Interface for GPS breakout board</li> <li>Infineon offers large product portfolio for GPS LNA</li> </ul>
Bluetooth low energy (BLE)	<ul style="list-style-type: none"> <li>BLE interface possible</li> <li>BLE based Android App for control of the multicopter</li> </ul>

For more information about the XMC4500 board visit: [www.infineon.com/demo-xmc4500](http://www.infineon.com/demo-xmc4500)



## Ready to go IMU for evaluation and education purpose

- 1. LV MOSFETs: BSC0942NDI Dual MOSFET
- 2. Driver: IR2301s
- 3. Electronic speed control (ESC): XMC1302, XMC1100 with IRMCK099
- 4. High resolution sensor for altitude control: DPS310
- 5. Flight controller: XMC4500
- 6. Battery authentication: SLE95050
- 7. LED Driver: BCR320U
- 8. Onboard debugger: XMC4200
- 9. IMU Invensense: MPU9250

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