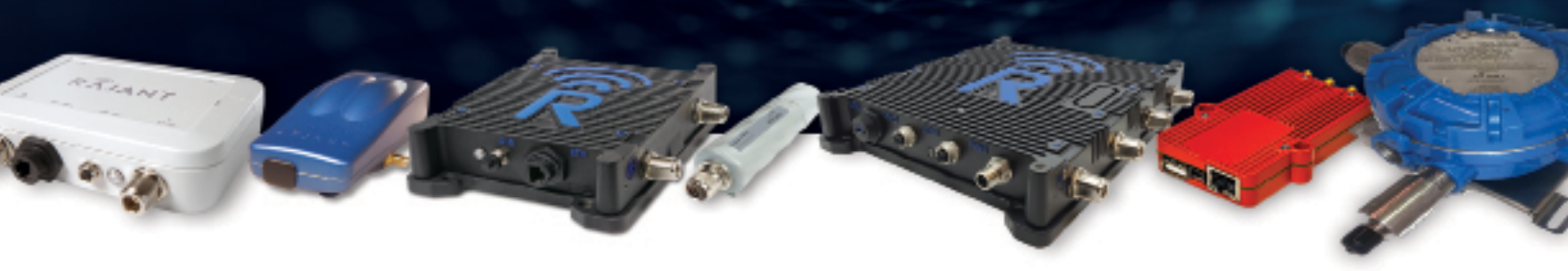
Rajant BreadCrumbs®

Powerful Functionality in a Compact Form



Rajant's Kinetic Mesh® network is unlike any other wireless mesh system on the market today, providing fully mobile broadband connectivity that is simple, instantaneous, and fault-tolerant for any application.

The network's power lies in Rajant's wireless BreadCrumbs: the compact, lightweight, industrial-grade nodes that form this agile, adaptable wireless infrastructure.

BreadCrumbs have unique capabilities that enable them to perform flawlessly in even the most hard-to-network environments and make them ideal for deployment across ever-moving operations.

Peer-to-Peer Functionality

Every Rajant BreadCrumb can hold multiple simultaneous connections, over multiple frequencies, with other nodes in the mesh, eliminating the need for a controller node while adding network reliability.

Self-Optimize without Intervention

InstaMesh enables the nodes to adapt in real-time to quickly or constantly moving network elements. No connections have to be broken for new ones to be made, providing for resilient mobility.

Deployable as Fixed or Mobile Nodes

Compact, lightweight BreadCrumbs can be affixed to static equipment or deployed directly on moving assets – so machines and personnel can take connectivity with them wherever they go.

Support Seamlessly Scalability

If new BreadCrumbs are added, they automatically begin meshing with neighboring nodes and further strengthen the network by providing additional paths to send traffic.

Infused with InstaMesh® Intelligence

All BreadCrumbs have Rajant's patented InstaMesh networking software onboard, which dynamically evaluates and directs traffic via the best available path(s) at any given moment.

Perform in Extreme Conditions

The industrial-strength design of the nodes, coupled with IP67-rated dust-tight and water-tight enclosures for most models, allow them to operate continuously in virtually any environment for years.

BreadCrumbs can easily integrate with and enhance existing network infrastructure, including third-party satellite, wired, point-to-point wireless, point-to-multipoint wireless, or can be deployed ad hoc to bring connectivity where no communications infrastructure yet exists.

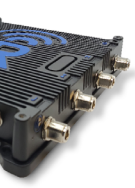
Rajant BreadCrumb® Portfolio

Find the Right Radio for the Right Function.

Use the chart below to compare the features and functionality of our wireless BreadCrumb offerings.

		Core Brea			
					
	Model	**Cowbell**	**Peregrine LTE**	**Peregrine Licensed**	**Pereg**
Key Features	Install Area / Attachment	Infrastructure, heavy equipment	Infrastructure, heavy equipment	Infrastructure, mobile equipment	Infrastructure, h
	Ideal Applications / Tagline	Distributed computing hub and Platform-as-a-Service to SIMPLIFY the delivery and management of AI solutions at the edge.	Hybrid network to extend LTE networks. Great for harsh environments with high shock and vibe.	Licensed frequencies for defense / military.	Highly ruggedized fo with high shock and autonomou
Radio	Max TX Power	25 dBm	30 dBm, up to 25 dBm LTE	32 dBm	30 d
	Radio Configuration	Dual 2x2 MIMO	"Triple 2x2 MIMO 3 Wi-Fi, Single 2x2 MIMO LTE"	Quad 2x2 MIMO or Triple 3x3 MIMO	Quad 2x
	Radio Type	Up to 802.11ac Wave 2	Up to 802.11ac	Up to 802.11ac	Up to 8
	Max Channel Size (MHz)	80 MHz	80 MHz	80 MHz	80 M
	Combined Data Rate (Mbps)	1730 Mbps	2600 Mbps	2300 Mbps	2300
	Radio Count	2	4	4	4
	Antenna Ports	4	8	9 or 8	8
	Frequencies Supported	2.4, 5 GHz	2.4, 5 GHz	Custom Frequecies	2.4, 5
Interface	Ethernet spec	1 of GbE	2 of GbE	2 of GbE	2 of
	USB Ports	1	1	1	1
	Connector Interfaces	RJ45, USB	M12, USB Type A	M12, USB Type A	M12, USB
	DC power connection	1	1	1	1
Power	Input Voltage	10-58VDC	"20-60VDC (DC input) 38-60VDC (Passive PoE)"	"20-60VDC (DC input) 38-60VDC (Passive PoE)"	"20-60VDC 38-60VDC (P
	Power Consumption (idle/ peak)	4.2W/14.4W	10W/34W	10W/35W	10W/
	Power Input	Passive PoE	"2 of PoE++, Passive PoE 1 of DC input"	"2 of PoE++, Passive PoE 1 of DC input"	"2 of PoE++, 1 of DC
Physical	Operating Temperature (with heater if available)	-40°to60°C	-40°to70°C	-40°to70°C	-40°to
	Dimensions	14 X 14"	264.9 x 253.7 x 46.2 mm (10.43 x 9.99 x 1.82 in)	264.9 x 253.7 x 46.2 mm (10.43 x 9.99 x 1.82 in)	264.9 x 253. (10.43 x 9.9
	Weight	0	2946 g (6 lbs 7.9 oz)	2946 g (6 lbs 7.9 oz)	2946 g (6

dCrumbs®





grine	Hawk	Condor	Sparrow	ES1
eavy equipment	Infrastructure, heavy equipment	Infrastructure, heavy equipment	Construction equipment, heavy-duty machinery and light-duty vehicles	Indoor and outdoor locations
r harsh environments vibe, tele-remote and s operation	Highly ruggedized for harsh environments with high shock and vibe, tele-remote and autonomous operation	Licensed frequencies for defense, government, and broadcast	Telematics, fleet management, collision avoidance	Ideal for Industrial IoT, robotics, and light duty vehicles
Bm	30 dBm	32 dBm	29 dBm	29 dBm
2 MIMO	Dual 2x2 MIMO	2X2 MIMO	Dual 2x2 MIMO	Dual 2x2 MIMO
02.11ac	Up to 802.11ac	Up to 802.11ac	Up to 802.11n	Up to 802.11n
MHz	80 MHz	80 MHz	40 MHz	40 MHz
Mbps	1700 Mbps	1733 Mbps	600 Mbps	600 Mbps
4	2	2	2	2
3	4	4	4	4
GHz	2.4, 4.9, 5 GHz	Custom Frequecies	2.4, 5 GHz	2.4, 4.9, 5 GHz
GbE	2 of GbE	1 of GbE	1 of GbE	1 of GbE
1	1	1	1	1
B Type A	M12, USB Type A	M12, USB Type A	RJ45, M8	RJ45, M8
1	1	1	1	1
C (DC input) Passive PoE)"	"20-60VDC (DC input) 38-60VDC (Passive PoE)"	38-60VDC (Passive PoE)	9-30VDC	9-30VDC
34W	10W/34W	10W/34W	2.8W/15W	2.8W/15W
Passive PoE C input"	"2 of PoE+, Passive PoE 1 of DC input"	2 of PoE++, Passive PoE	Passive PoE	Passive PoE
o70°C	-40°to70°C	-40°to70°C	-40°to70°C	-40°to60°C
7 x 46.2 mm 9 x 1.82 in)	264.9 x 253.7 x 46.2 mm (10.43 x 9.99 x 1.82 in)	142.5 mm x 187.3 mm x 49 mm (5.59” x 7.37” x 1.93”)	172 mm x 187 mm x 48 mm (6.79” x 7.37” x 1.90”)	155 mm x 149 mm x 41 mm (6.079” x 5.830” x 1.575”)
lbs 7.9 oz)	2600g (5 lbs 13 oz)	1548 g (3lb 5.6oz)	1312 g (2 lbs 14.3 oz)	455 g (16 oz)

Rajant BreadCrumb Portfolio

Find the Right Radio for the Right Function

Use the chart below to compare the features and functionality of our wireless BreadCrumb offerings.

	Modules		Application Specific
			

	Model	Cardinal	DX2	ES1-IS
Key Features	Install Area / Attachment	Embedded, Robots, drones, light-duty vehicles	Embedded, Drones, Small Robots	HazLoc areas
	Ideal Applications / Tagline	"Small/light module 802.11AC Wave2"	Drone Swarming. Public Safety, Industrial Security	Intrinsically safe C1D1
Radio	Max TX Power	25 dBm	30 dBm	14 dBm
	Radio Configuration	Dual 2x2 MIMO	Single 2x2 MIMO	Single 2x2 MIMO and Single 1X1 SISO
	Radio Type	Up to 802.11ac Wave 2	Up to 802.11n	Up to 802.11n
	Max Channel Size (MHz)	80 MHz	40 MHz	40 MHz
	Combined Data Rate (Mbps)	1730 Mbps	300 Mbps	450 Mbps
	Radio Count	2	1	2
	Antenna Ports	4	2	3
	2.4 GHz Frequencies Supported	2.4, 5 GHz	2.4, 5 GHz	2.4, 5 GHz
Interface	Ethernet spec	1 of GbE	1 of GbE	1 of GbE
	USB Ports	1	1	0
	Connector Interfaces	RJ45, USB Type A	RJ-45, USB Micro B	RJ45
	DC power connection	1	1	0
Power	Input Voltage	"10-53VDC (DC input) 24/48VDC (PoE)"	8-60VDC	9-30VDC
	Power Consumption (idle/peak)	4.2W/14.4W	2.8W/7.5W	2.8W/15W
	Power Input	Passive PoE, DC input	Passive PoE	Passive PoE
Physical	Operating Temperature (with heater if available)	-40°to60°C	-40°to60°C	-40°to60°C
	Dimensions	17.8 mm x 98.0 mm x 60.68 mm (0.70" x 3.86" x 2.39")	108 x 43 x 40 mm (4.252 x 1.693 x 1.575 in)	320 X 240 X 100 mm (12.598 X 9.449 X 3.937 in)
	Weight	90 g (3.2 oz)	123 g ± 10 g (4.4 oz ± 0.4 oz)	3.54 kg (7.8 lbs)

Edge Node	LAN / Wired		
			
JR3	Slipstream APT	Needletail	PiSM
Edge Devices	Indoor locations	Indoor locations	Indoor and outdoor and mobile locations
"Light-duty vehicles, edge devices, and remote Access Points"	For high bandwidth wireless-to-wired network connections with loop prevention	For ultra high bandwidth wireless-to-wired network connections with loop prevention	Inline encryption to FIPS 140-3
27 dBm			
Single 1x1 SISO			
Up to 802.11n			
40 MHz			
150 Mbps	1000 Mbps	10000 Mbps	500 Mbps
1			
1			
2.4, 5 GHz			
1 of 100mbps	2 of GbE	4 of 10 GbE, 2 of 2.5 GbE	2 of GbE
0	4	4	0
RJ45	RJ45, USB Type A	RJ45, USB Type A	M12
0	1	1	0
9-30VDC	12VDC	12-48VDC	38-60VDC
1.8W/6W	10W	330W	8W/11W
Passive PoE	DC input	DC input	Passive POE
-30°to70°C	0° C to 85° C (32° F to 185° F)	-40°to50°C	-40°to60°C
177 x 44 x 44 mm (6.97 x 1.73 x 1.73 in)	135mm x 128mm x 35mm (5-5/16" x 5-3/64" x 1-3/8")	267 mm x 82 mm x 240 mm (10.51 in x 3.23 in x 9.45 in)	152.4mm x 95.3mm x 51mm (6 in x 3.75 in x 2 in)
193 g (6.8 oz)	630g (22.2 oz)	5.3 kg (11 lbs 11.0 oz)	624g (22oz)

BreadCrumb Benefits:
Network Infrastructure for Today's Interconnected, Mobile World

Rajant BreadCrumb nodes are purpose-built to reliably enable voice, video, and data communications instantly and without fail almost anywhere. They readily form a fully redundant web of meshed connections to deliver more reliability, mobility, and resiliency using less infrastructure than other wireless networking options like Wi-Fi or LTE.

Rajant BreadCrumbs have been proven in the field for two decades to deliver on the promises of:

- **Robust fault tolerance:** no single point of failure & ability to work around interference
- **High bandwidth and low latency:** nodes have hundreds of potential paths to direct traffic
- **Total, 'never-break' mobility:** enables M2M communications, autonomy, and more
- **Cost-effective network scalability:** requires minimal technical resources to manage and expand
- **Military-grade network security:** every node has multiple cryptographic options

Not sure what BreadCrumb is best for your application?

We're ready to help you further assess your network requirements and will recommend the appropriate solution for your needs.

Get in touch today:
+1 484.595.0233 | info@rajant.com | rajant.com/contact-us

Tel: 484.595.0233 | www.rajant.com

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20+ Years OF GAME-CHANGING WIRELESS

RAJANT
Intelligent Edge - Enabling Industrial AI