CERAGON

WIRELESS BACKHAUL IS EASIER
WITH MULTICORE EVERYWHERE

IP-20 PLATFORM

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THE MULTIDIMENTIONSAL CHALLENGE CURVE OF 5G HAULING

As you evolve your network and services to 5G, past challenges are supplemented by additional requirements that together form a multidimensional challenge curve:

DELIVER MORE CAPACITY

This need derives from the increased capacity required by end devices, and from the increased number of end devices.

DEPLOY MORE SITES

The need to deploy more sites derives from the need for higher capacity per area and the use of higher RAN frequency bands, which require much shorter distances between cell sites and end devices. This means massive network densification – with up to five times the number of cell sites in certain parts of the network.

ENABLE DIVERSE 5G USE CASES

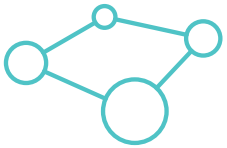
Your network needs to support new services and use cases, and address new markets and requirements. Four game-changing sets of applications – enhanced mobile broadband (eMBB), ultra-reliable low-latency communications (URLLC), massive machine-type communications (mMTC), and fixed wireless access (FWA) – all need to be supported by the same network.

ACHIEVE MASS DEPLOYMENT

Keeping up with your business targets and shortening time to revenue require fast mass deployment. You need to promptly deploy and connect new sites while optimizing resource use and overcoming scale and skill gaps.

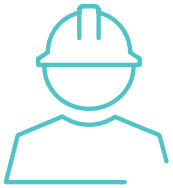
All of these needs may result in a lack of timely solutions, as industry innovation falls behind the multidimensional challenge curve.

MORE CAPACITY



MORE SITES

DIVERSE 5G USE CASES



MASS DEPLOYMENT

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FibeAir IP-20 Platform

Evolving your network to Gigabit-LTE and 5G is easier with multicore everywhere

Your network evolution strategy towards Gigabit-LTE and 5G poses challenges to your wireless backhaul network including: capacity growth, network densification, and network modernization.

Capacity growth strains your wireless backhaul. Network densification will further challenge your backhaul resources. Network modernization is driven by the need to resolve RAN spectrum availability, which requires your wireless backhaul solution to support the gradual shutdown of your 2G and TDM services, as well as the move to a 100% IP infrastructure.

Ceragon's multicore technology achieves tight integration between two carriers in a single radio unit, allowing you to successfully address these challenges while using less resources. The IP-20 Platform can be deployed across your entire wireless backhaul infrastructure – from small-cell backhaul to high-capacity aggregation nodes and long-haul backbones. It offers superior flexibility in choosing all-outdoor, split-mount and all-indoor configurations to suit any deployment scenario.

By expanding your available capacity, the IP-20 Platform helps you meet specific traffic needs in both the traditional microwave spectrum and new frequency bands.

It also relieves your real estate and tower load challenges with multicore high-power radios (reaching 36dBm transmit power) that reduce your antenna size, extend your network's reach and enhance your service availability. With its unique multicore technology available everywhere in your network, the IP-20 Platform makes wireless backhaul easier and enables you to effectively resolve your wireless backhaul challenges on the road to Gigabit-LTE and 5G, while using less resources.

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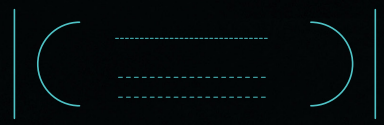
OUR TECHNOLOGY – YOUR VALUE

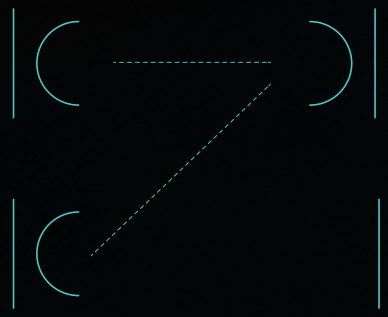
5G CAPACITY GROWTH

1 click, double capacity



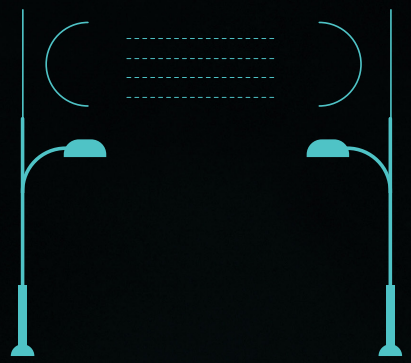
5G CAPACITY WITH NO COMPROMISE

Multiband



INCREASED LONG-HAUL EFFICIENCY AND FLEXIBILITY

Advanced Space Diversity (ASD)

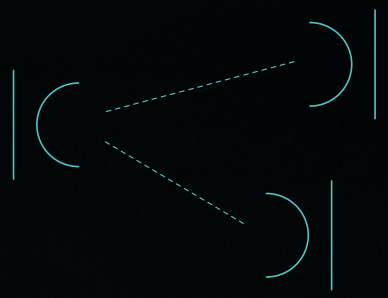


SIMPLIFIED 5G SITE ACQUISITION & INSTALLATION

All-outdoor solutions

5G CAPACITY IN NARROWBAND SPECTRUM

4x4 LoS MIMO



EASIER 5G NETWORK DENSIFICATION

Advanced Frequency Reuse (AFR)

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ALL-OUTDOOR

FibeAir IP-20C

All-outdoor, compact,
all-IP multicore node | 6-42GHz

FibeAir IP-20C-HP

All-outdoor, high-power,
long-haul, all-IP multicore node | 4-11GHz

The **IP-20C** and **IP-20C-HP** are all-outdoor, compact wireless backhaul nodes that suit any network deployment scenario, from aggregation sites to small cell backhaul. Designed with flexibility to meet a wide variety of challenges throughout your network deployment, the IP-20C and IP-20C-HP enable 1Gbps radio capacity over a single 28MHz channel or 2Gbps over a single 56MHz channel. Using Ceragon's unique multicore technology you can:

- Provide the highest radio capacity and spectral efficiency in any condition and any frequency channel size (up 80MHz)
- Double wireless backhaul capacity via remote activation of another radio carrier with no site visits required – the fastest transmission network setup from planning to fulfillment
- Deploy sites where needed, removing wireless backhaul constraints by doubling the reuse of microwave frequency channels, using Advanced Frequency Reuse (AFR) technology embedded in Ceragon's multicore technology
- Deliver the needed wireless backhaul capacity at as little as ¼ of the spectrum with Ceragon's field-proven LoS MIMO 4x4 technology
- Reduce the number of radios and antennas by 25% by leveraging Ceragon's unique Advanced Space Diversity (ASD) capabilities

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ALL-OUTDOOR

FibeAir IP-20E

All-outdoor, ultra-compact, all-IP, E-Band node | 71-86GHz

The FibeAir IP-20E is an ultra-compact, high-capacity, all-outdoor wireless backhaul node that helps you meet your capacity requirements, simplify network deployment and installation, and reduce your spectrum costs. Connect high-capacity sites, overcome microwave spectrum limitations and costs, or simply expand your network in a metro environment. Ceragon's IP-20E allows you to:

- Reduce your E-Band spectrum fees by allowing you to acquire just the right amount of spectrum you need by supporting 62.5MHz spacing
- Provide high capacity and spectral efficiency of up to 2.5Gbps over a 500MHz channel
- Allow enhancement of any existing microwave links with E-Band carrier bonding (multiband)

FibeAir IP-20V

All-outdoor, ultra-compact, all-IP, V-Band node | 57-66GHz

The FibeAir IP-20V is an exceptional solution for small-cell backhaul and enterprise connectivity. This ultra-compact, high-capacity, low-latency all-outdoor wireless backhaul node helps you to:

- Minimize operational overhead – a single part number throughout your network eliminates the need for complicated stock management and a lengthy installation process
- Simplify your link setup with an internal scanner that maps and recommends a specific sub-band, minimizing the time required for site installation
- Avoid spectrum fees by utilizing license-exempt V-Band
- Provide a future-proof radio capacity of up to 2.5Gbps
- Leverage an ultra-low-latency FDD solution
- Achieve availability and SLA goals with automatic interference mitigation mechanism

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FibeAir IP-20N

High-availability, modular aggregation and backbone node for all-packet and hybrid networks | 4-86GHz

The FibeAir IP-20N is a highly flexible aggregation and backbone node that delivers multi-Gbps radio capacity at a very large scale. It features high modularity and flexibility, and supports a large number of radio carriers with an exceptionally wide variety of line interfaces via pluggable modules in a broad range of network topologies – making it the preferred node for your transport network's aggregation and backbone sites.

At Ceragon, we understand how important the resiliency of your aggregation and backbone sites is to you. For this reason, we designed the IP-20N to support a no singe-point-of-failure (no SPOF) architecture, so that the main processing unit and all line and radio interfaces are protected to ensure your network can continuously support your business goals.

It also: supports all high-speed data interfaces (FE/1GE/10GE) and a wide variety of TDM interfaces (E1/DS1, STM-1/OC-3); operates with a wide variety of multicore, standard and high-power radios; and accommodates various network configurations including 2x 8+0 and 8x 2+0. The FibeAir IP-20N allows you to continuously increase your operational efficiency and to:

- Provide the highest radio capacity and spectral efficiency in any condition and any frequency channel size (up to 112MHz)
- Ensure a quick network capacity growth path with "single click" capacity upgrade anytime, anywhere
- Decrease energy costs by up to 40%
- Reduce tower or rooftop equipment footprint by 50% in dual-carrier configurations
- Optimize E-Band aggregation sites, support TDM over E-Band, enhance existing microwave links with E-Band (multiband), and utilize Ceragon's unique E-Band RFU

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SPLIT-MOUNT / ALL-INDOOR

FibeAir IP-20F

Compact multicore edge node | 4-86GHz

The FibeAir IP-20F is a split-mount edge node that delivers multiple Gbps radio capacity to your transport network. It supports three built-in radio interfaces with multiple high-speed data, as well as TDM interfaces. The FiberAir IP-20F enables you to:

- Achieve the highest radio capacity and spectral efficiency in any channel size (up to 112MHz)
- Reduce outdoor equipment footprint by 50% in dual-carrier configurations
- Optimize E-Band aggregation sites

FibeAir IP-20G

Compact edge node | 6-42GHz

The FibeAir IP-20G is a split-mount edge node delivering up to 1Gbps radio capacity to your transport network. It supports two built-in radio carriers with multiple data and E1/T1 interfaces.

The IP-20F and IP-20G provide you with the simplicity of deploying a very compact fixed-configuration node, and the benefits of resolving your wireless backhaul challenges with less resources. Both fixed configurations simplify installation, spare part management and maintenance. The IP-20F and IP-20G are available in external-protection configurations (1+1), which allow you to achieve and maintain your SLA targets. Their passive cooling design suits harsh environments, increases reliability and minimizes ambient noise.

RADIO UNITS

RFU-D

High-performance,
multicore RFU | 6-42GHz

RFU-D-HP

High-performance, high-power,
long-haul, multicore RFU | 4-11GHz

The RFU-D and RFU-D-HP are based on Ceragon's unique multicore technology, and feature advanced wireless backhaul capabilities that allow you to:

- Provide the highest radio capacity and spectral efficiency in any condition, any frequency channel size (up to 112MHz), and any form factor (available in split-mount and all-indoor configurations)
- Ensure a quick network capacity growth path with "single click" capacity upgrade anytime, anywhere
- Reduce tower equipment footprint by 50% in dual-carrier configurations and high-power radios
- Support low-loss, multi-channel branching and mediation devices, which enable you to construct multi-carrier low-loss links for extremely high-capacity, long-haul applications
- Utilize existing infrastructure and enhance existing Ceragon legacy installations
- Reduce energy costs by up to 20%
- Increase operational flexibility (moving from 1T1R to 1T2R and 2T2R) and offering pay-as-you-grow branching units
- Simplify operations and shorten time to market with easy-set radios (field-replaceable diplexers/channel filters)
- Utilize the same radio units for filter-based and diplexer-based configurations

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RFU-E

High-performance, E-Band RFU | 71-86GHz

The RFU-E split-mount radio unit for E-Band frequency band allows you to efficiently manage your hub sites. You can now aggregate multiple E-Band links at your hub site, deliver TDM-based services over E-Band, and enhance existing microwave links with E-Band carrier bonding (multiband).

Whether your challenge is connecting and aggregating high-capacity sites or overcoming microwave spectrum limitations and costs, the RFU-E allows you to:

- Provide ultra-high radio capacity and spectral efficiency – up to 2.5Gbps over a 500MHz channel
- Minimize your sites' physical footprint with an integrated flat panel antenna – allowing you to install your equipment on congested poles
- Reduce your E-Band spectrum fees by allowing you to acquire just the right amount of spectrum you need by supporting 62.5MHz channel spacing
- Enhance existing Ceragon legacy installations

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RFU-C

High-performance, small-footprint RFU | 6-42GHz

Ceragon's software-configurable **RFU-C** supports a broad range of capacities and modulations, covering the entire range of channel spacing (3.5-60MHz).

The RFU-C supports multiple indoor units, enabling you to optimize your entire network deployment to fit your specific application.

RFU-HP

High-power, reduced power consumption RFU | 6-11GHz

The **RFU-HP** offers high-power, reliable, long-term RF performance in wide-channel bandwidth up to 60MHz. This easy-to-install unit features a smart energy mode, which can save 35% in wireless backhaul power expenses.

With tens of thousands of units deployed worldwide, it enables you to reach longer distances using smaller antennas. This high-quality, cost-effective unit includes two receivers and one transmitter in a single transceiver unit, enabling you to optimize your space diversity installation and increase link reliability.

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Specifications

	IP-20C	IP-20C-HP	IP-20E	IP-20V	IP-20N	IP-20F	IP-20G
Radio							
4-11GHz		+			+	+	
6-42GHz	+				+	+	+
V-Band				+			
E-Band			+		+	+	
10-Step ACM QPSK-2048QAM	+	+					+
12-Step ACM BPSK-4096QAM					+	+	
BPSK-1024QAM			+				
BPSK-128QAM				+			
Advanced Frequency Reuse | 4x4 MIMO	+	+					
All-Indoor					+	+	+
Split-Mount					+	+	+
All-Outdoor	+	+	+	+			
Advanced Space Diversity	+	+					
Integrated Antenna			+	+	+	+	
Parabolic Antenna	+	+	+		+	+	+
XPIC	+	+			+	+	+
User Interfaces							
E1					+	+	+
STM-1					+	+	
1Gbe	+	+	+	+	+	+	+
10GbE			+	+	+		

Specifications

	IP-20C	IP-20C-HP	IP-20E	IP-20V	IP-20N	IP-20F	IP-20G
Networking							
Integrated Carrier Ethernet switching capabilities, MEF Carrier Ethernet 2.0 compliant | up to 30% more capacity using header deduplication | carrier-grade service resiliency (G.8032, MSTP) | SyncE and 1588 synchronization | ITU-T Y.1731 fault and performance management: MEF 35 | high resiliency to bursty LTE/LTE-A traffic using ultra-deep buffers | service assurance for strict SLAs utilizing hierarchical quality of service (H-QoS) | SDN-ready	+	+	+	+	+	+	+
Layer 1 Carrier Bonding							
Unique layer 1 carrier bonding (multi-carrier adaptive bandwidth control – ABC), enabling multi-carrier aggregation to a single link, carrying TDM and Ethernet traffic – enhancing equipment and spectrum utilization and increasing service availability	+	+			+	+	+
Security							
Comprehensive, multi-layer security: AES-256 radio encryption | secured protocols and management interfaces (HTTPS, TLS, SSH, SNMPv3) | secured architecture and software design | advanced authentication and identification management	+	+	+	+	+	+	+
Operating Systems							
Unified CeraOS operating system, which streamlines wireless backhaul network modernization, operation and management	+	+	+	+	+	+	+
Supported Radio Units							
RFU-HP, RFU-C					+		+
RFU-D, RFU-E, RFU-D-HP					+	+	

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ABOUT CERAGON

Ceragon Networks Ltd.is the world's #1 wireless backhaul specialist. We help operators and other service providers worldwide increase operational efficiency and enhance end customers' quality of experience with innovative wireless backhaul solutions. Our customers include wireless service providers, public safety organizations, government agencies and utility companies, which use our solutions to deliver 4G, mission-critical multimedia services and other applications at high reliability and speed. Ceragon's unique multicore technology provides a highly reliable, high-capacity 4G wireless backhaul with minimal use of spectrum, power and other resources. It enables increased productivity, as well as simple and quick network modernization. We deliver a range of professional services that ensure efficient network rollout and optimization to achieve the highest value for our customers. Our solutions are deployed by more than 460 service providers, as well as hundreds of private network owners, in more than 130 countries.

CHALLENGE US
TO TAKE YOU FURTHER

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