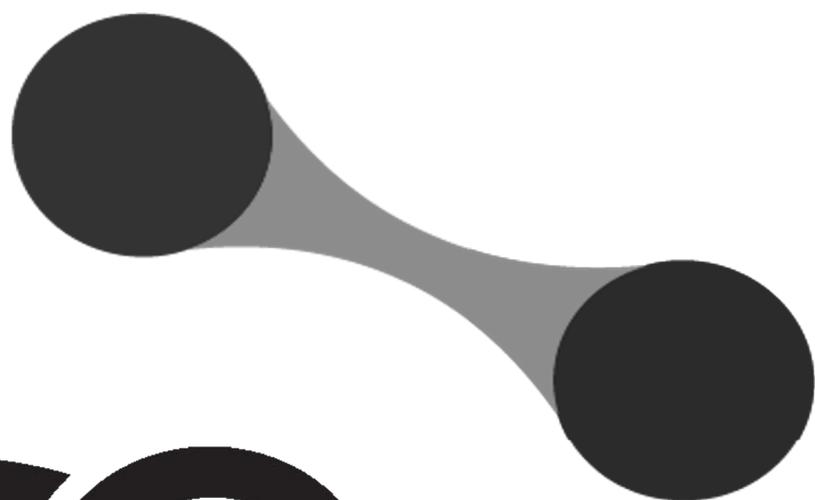
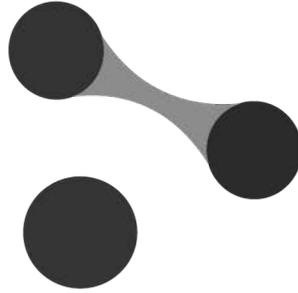


TECH DESIGN
KMICR6



TECH DESIGN
VOXMICR



INNOVATIONS :
Wi-Fi 6e Modules

AIRETOS[®]
PCI  **EXPRESS[®]**
20
CLASS



Wi-Fi ADVANCES IN SYNERGY

WI-FI 6/6E, in fine coexistence with new cellular protocols, re-defines high throughput wireless data delivery.



RESILIENT, FASTER, **DENSER, FURTHER**

WI-FI6 adopts cellular-like signal management to deliver an experience revolution: robust links for the entire ecosystem.

HD MIMO: more traffic per link.

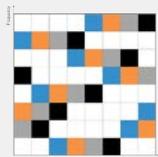
Up to 8x increase in capacity. *

Extended coverage for outdoor use cases.

Improved device battery life.



HD MU-MIMO



160MHz + OFDMA



Long OFDM symbol



Target Wake Time



QAM



DBS



Extended range



BSS Color

Efficiently serving multiple traffic types.

Dual-Band Simultaneous with tri-band support.

Optimal performance in dense environments with many APs.

* in median throughputs compared to 4x4 11ac

RESILIENT, FASTER, **DENSER, FURTHER**

WI-FI6 adopts cellular-like signal management to deliver an experience revolution: robust links for the entire ecosystem.

MIMO: better link.

Priority fast-links.



MIMO



128 QAM

2.4 GHz or 5GHz



Dual-Band

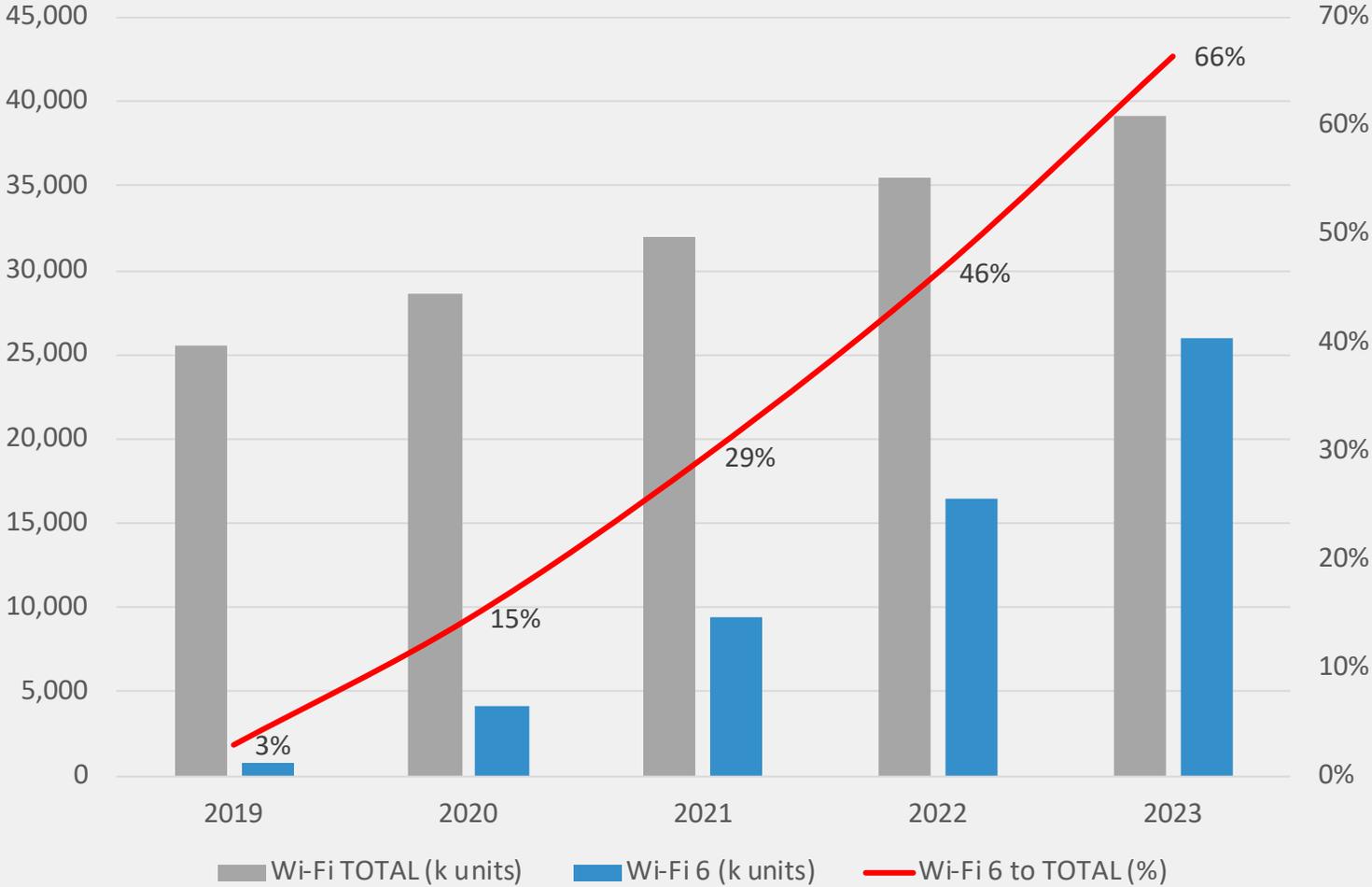


Dual-Band Selectable.

* in median throughputs compared to 4x4 11ac

ACCELERATED UPTAKE

Data demand drives WI-FI 6 WLAN Access Point unit shipments to exceed two thirds of total by 2023.



Source: GARTNER Forecast: Enterprise Network Equipment by Market

FOCUSED RELATIONSHIP

VOXMICRO deploys QUALCOMM's wireless ICs into flexible, supported modules by:

- engaging early on emerging technologies
- directly accessing Qualcomm expertise
- accommodating adaptive, tailored, custom and complex designs



Qualcomm invents breakthrough technologies that transform how the world connects, computes and communicates.



VOXMICRO is an independent licensed QUALCOMM Partner with a prime focus in Wireless Modules and Radio-Frequency Components.

THE LEADING **WI-FI 6E LGA CoB**

Fully leveraging QUALCOMM's Wi-Fi technological leadership, VOXMICRO introduces the first complete Chip-on-Board modules.



Qualcomm

QCA206x

With the QCA206x, the HastingsPrime and the Verona reference designs, QUALCOMM maintains its track-record in delivering game-changing technologies. The QCA2066 SoC for example is a high performance, **fully-featured Wi-Fi 6E Chip** that provides **resilient tri-band 802.11ax combo** with a rich, outperforming implementation of the new **Bluetooth 5.2** into a single die.



AIRETOS
PCI 
EXPRESS
20
CLASS

VOXMICRO's AIRETOS® E20 Class sets an industry benchmark by marrying state-of-the-art technologies with **extended features** and cutting-edge, **flexible design**. The E20 Class aids adoption with module variants that widely cover **form factors, operating grades** and **antenna designs**. All complemented by extensive regulatory and design support.

Wi-Fi 6/6E
(802.11 ax)

Up to
3.0 Gbps

WPA3
security

Target
Wake Time

1024 QAM &
8-stream
sounding



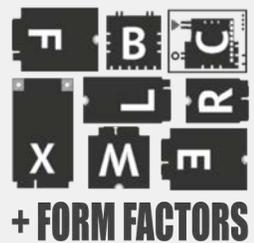
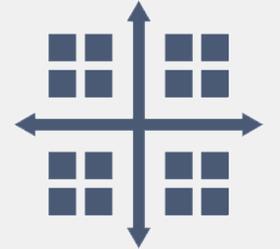
BT 5.2
integration

Dual-Band
Simultaneous (DBS)
2.4 + 5 or 6 GHz

UL MU-MIMO for
8x Tput gain vs. single user

UL OFDMA
for lower latency

Tri-Band 2.4 + 5 + 6 GHz
& 160MHz Channels



E20 LGA CoB: AN ADAPTIVE MODULE PLATFORM

01 Build with **Qualcomm**

Based on the Qualcomm QCA206x SoC family, part of the FastConnect 6900 and Networking Pro architectures, the E20 leverages leading engineering know-how.

02 The Chip **of Choice**

Built to meet the surging connectivity demands of today's world and with choice in mind, the E20 Class can use an array of pin2pin compatible chipsets so to match the desired feature-set.



03 Flexible **By Design**

Further choices include the BT communication bus, the operating grade, the coax connector size and finally the form-factor for either embedded or slot-in architectures.

04 Great Tools & **Regulatory**

Complete with development HW tools and systematic SW and driver materials, as well as certifications for major domains. On-demand additions, antennas and implementations are welcome.

FIRM EVOLUTION

Drawing from the innovation experience of the E63 Class, the E20 Class is an all-rounder upgrade, including commercial security.

VOXMICRO



AIRETOS
PCI EXPRESS
63
CLASS

AIRETOS
PCI EXPRESS
20
CLASS

- adds 6 GHz options
- adds 160 MHz channels
- adds BT USB option
- has EVB, HW tools and OSD/CLD/rich SDK
- has smaller, better design & thermal profile
- has stable, short lead-times

E20 CLASS PRODUCT BRIEF

Chipset

Qualcomm QCA2066-5 (USB BT) or QCA2066-0 (UART BT).

IC choices include the respective pin-2-pin Verona ASICs QCA2065 for WiFi6E and QCA2064 or QCA2062 for WiFi6 target specs. Or the corresponding pin-2-pin HastingsPrime ASICs WCN685x-5 (for USB BT) or WCN685x-1 (for UART BT).

Wi-Fi Key Features

- Dual Band Simultaneous (DBS) with dual MAC, up to 3000 Mbps dynamic data transfer rate at 2x2(2.4GHz) + 2x2(5GHz or 6GHz) 11ax DBS mode. Full 802.11ax/ac/abgn MU-MIMO two antenna Wi-Fi.
- 20/40 MHz channels in 2.4GHz band and 20/40/80/160 MHz channels in 5GHz and 6GHz bands
- Seamless antenna sharing with LTE, LTE-U and 5G
- Dynamic Frequency Selection (DFS, radar detection). Also capable of supporting 4.9 & 5.9 GHz channels.
- Offloading traffic for minimal host utilization at 11ac/ax speeds
- Low power PCIe (w/L1 sub-state) interface
- Integrated close-loop power detector.

Bluetooth Key Features

- Bluetooth 5.2+ Milan with Class II and I mode, ANT+ and BLE. Backward-compatible to previous standards.
- Split ACL support for A2DP true stereo. Dual eSCO and dual A2DP streams.
- Flexible interface Slimbus/PCM/I2S for BT audio.

Operating Temperature

Up to -40° to +85° Celsius

OS & Tools

Windows, Ath11k Open Source and CLD Source Linux, macOS, Android Open and CLD Bring-up.

Evaluation Board and LGA Socket tool for access to production, diagnostic and development features.

Industrial Reference

Based on Qualcomm reference designs (Verona & HastingsPrime)

Antenna Configuration

Choice of larger MHF1 / U.FI. / IPEX or smaller MHF4 coax connectors.

Co-existent Bluetooth on WLAN antenna (separate BT antenna is an available design option).

RF Output Power

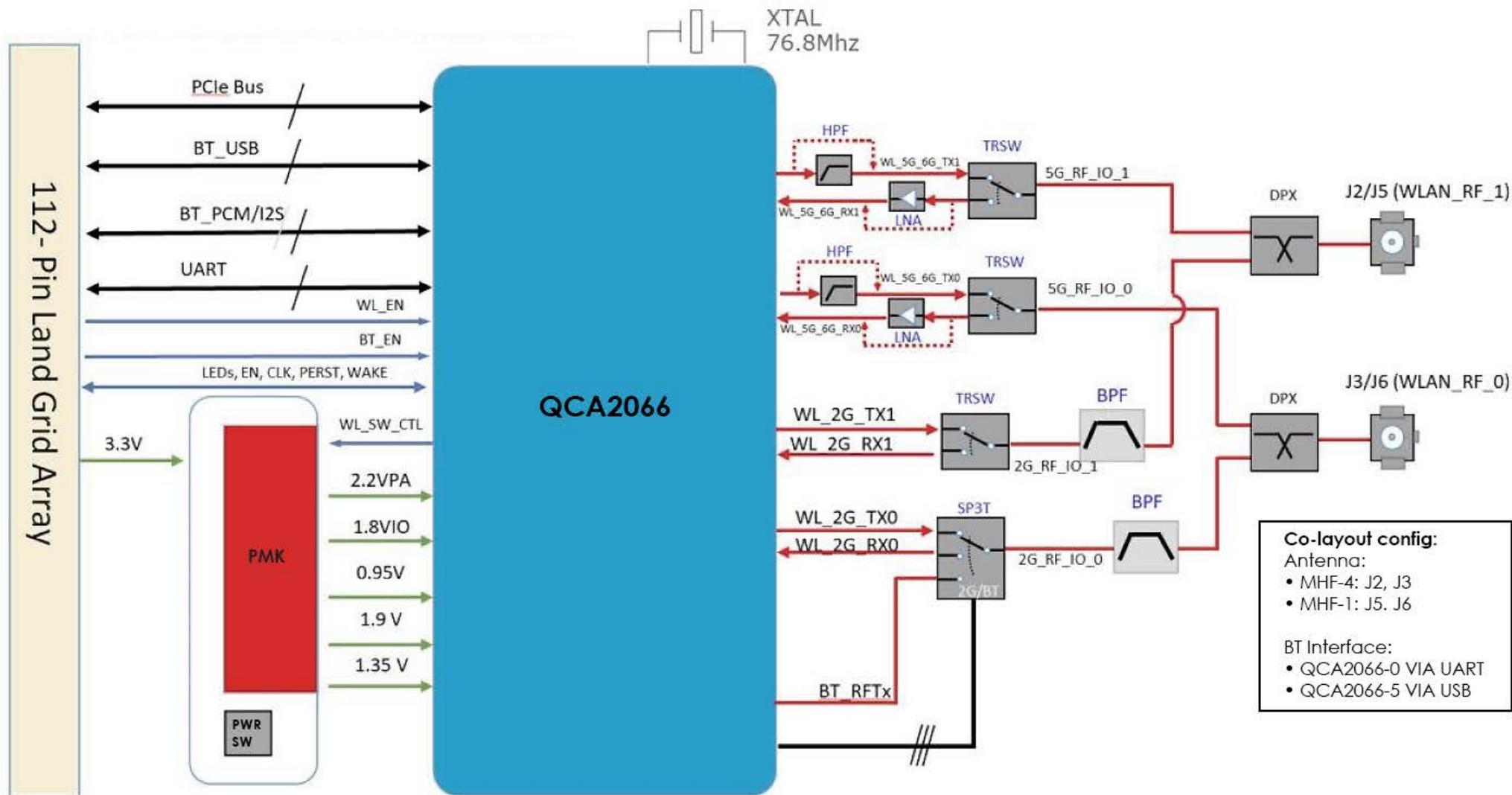
Up to 18.5dBm per chain, up to 21.5dBm combined

Regulatory Approvals

FCC, ISED Canada, Europe's CE; with 5 antenna types. More on-request.

THE POWER OF THE CoB CORE

The CoB+ (Chip-on-Board-on-Carrier) methodology forges choice of form-factors into Series W, F and X, maintaining all special features.



E20 CLASS FORM-FACTORS

xx□-QCA206x-xNxx

SLOTTED:

Modules with standard-based edge-connectors

xF□-QCA206x-xNxx
m.2 PCI (NGFF)

“Narrow” 1630

“Regular” 2230

“Wide” 3030

“Full” 3042

“Long” 2242

xFW-QCA206x-xNxx

xFF-QCA206x-xNxx



Series W
E-Key



Series F
B-Key

xE□-QCA206x-xNxx
MiniPCI Express (mPCIe)

xEX-QCA206x-xNxx



Series X

Full-Mini, 30*50.95 mm

EMBEDDED:

SMDs, Surface Mount Devices [CoB, SiP]
& Modules on Carrier [MoC]

xCB-QCA206x-xNxx



Series B

LGA Chip-on-Board, 23*25 mm

xCx-QCA206x-xNxx



Demand Integrations

MoC: ODM Module-on-Carrier

E20's PLANNING FLEXIBILITY

SLOTTED:

Modules with standard-based edge-connectors



SERIES W

LGA CoB soldered on
3030 M.2 (NGFF) E-Key
Carrier



SERIES F

LGA CoB soldered on
3042 M.2 (NGFF) B-
Key
Carrier



SERIES X

LGA CoB soldered on
full-mini PCIe
Carrier



SERIES B

LGA Chip-on-Board (CoB)
+
any compatible QCOM SoC



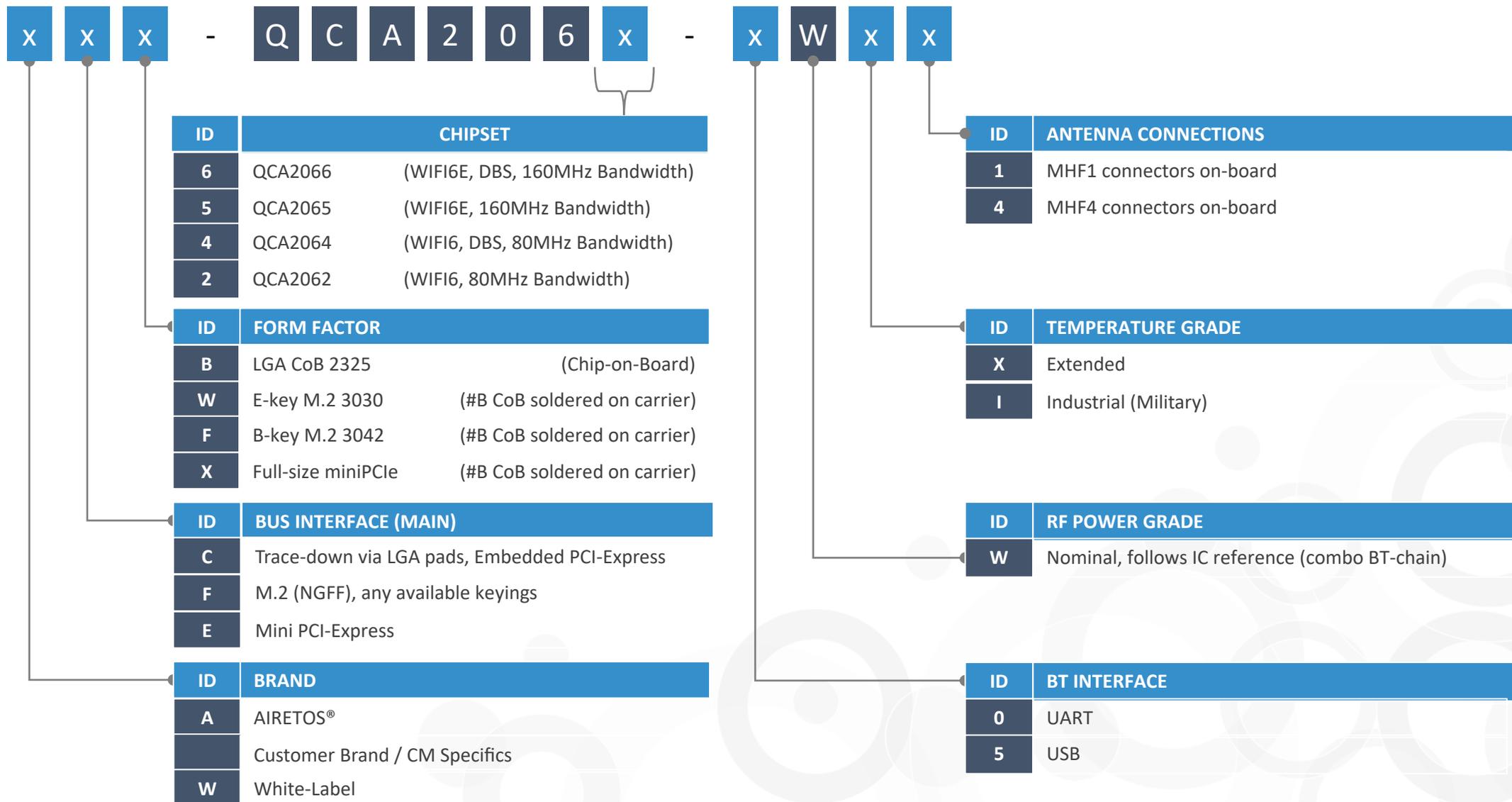
or



MHF1 or MHF4
BT via USB or UART

EMBEDDED:

E20 CLASS MPN LEGEND



PLAN & SCHEDULE

JAN
30

E20 Class public
introduction

FEB
15

(ES)
Engineering
Samples

APR
20

(CS)
Commercial
Samples

AUG
2023

Mass-Production Availability

10+
YEAR

Lifespan Expected

Unit MSRP:

General Channel Release in USD.



from \$34.⁹⁵



from \$39.⁹⁵

⋮ EVALUATE / GO TO MARKET

Request for Information

Samples &
Evaluation Board

Open or licensed
drivers

Digital, mechanical, antenna &
regulatory support

Scheduling & supply channel support

EVB & Tools:

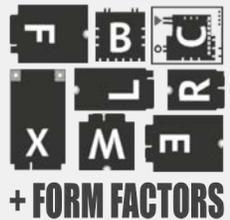
Available from January 30th, 2023

EV Board \$149

Socket \$1799

CHANGE IT / BRAND IT

Customer-Open Module Making: implement new and custom features with confidence.



- Custom form factors
- Co-existence on-module
- Connectors and GPIOs
- Domains and BT configurations
- Finish and packaging



- New antenna types
- Further countries
- Testing driver implementations
- System level approvals
- Co-listing & co-sponsoring

Other digital, mechanical, firmware, system, integration or software projects? Reach out.

Own BRAND:
or White Label or Custom Re-Design.

BASIC MAC, label, boxing

FULL Co-listing available

we understand the waves

