Wireless Charging Authentication Compliance with the Wireless Power Consortium (WPC) 1.3

A Leading Provider of Smart, Connected and Secure Embedded Control Solutions

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Wireless Charging Ecosystem is Developing

- **Almost all smartphones implement Qi charging**
  - > 1B Qi compliant smartphones in 2020
- **Ecosystem of transmitters is growing**
  - The end goal is to never need to carry a charger

WIRELESS POWER CONSORTIUM

- **Automotive**
- **Infrastructure**
- **Consumer**

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Microchip Wireless Power Solutions

RF
< 1W

Sensors, Hearing Aids

- Partnership with Powercast for long-range RF power transmission

Low power
15W

In-Car Chargers

- Implemented Qi® 1.2.4
- Qi® 1.3 development in progress

Medium Power
60-300W

Power Tools

- 60-300W power tool/industrial robot solution
- Reliable FOD scheme at 300W

High Power
2KW

Kitchen Appliances

- Cordless kitchen transmitter and receiver prototypes in the WPC developed with a dsPIC33 device

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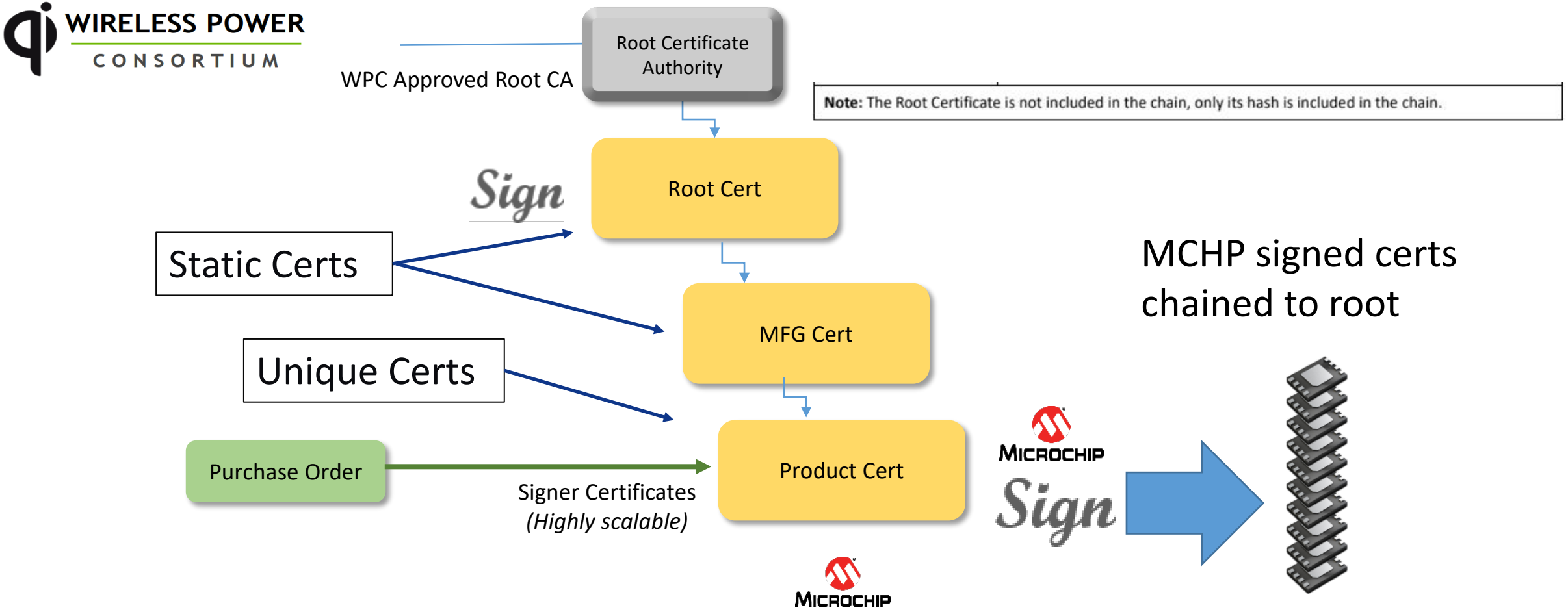
Qi® 1.3 Authentication Status

- **WPC work groups finalized specs December 2020**
  - Qi® 1.3 mandates HW based X.509 authentication in the transmitter
  - Note, all WPC documentation has replaced “Secure Element” terminology with “Secure Storage Subsystems”
- **Microchip is a licensed WPC Manufacturing Certificate Authority**
  - WPC MFG CA Agreement signed March 11
- **WPC Root CA signing ceremonies held every third Thursday of the month**
  - Microchip kicked off the first production CSR for the first ever signing ceremony on April 15

Charging Manufacturer Project Kick Off Steps

- **Must sign WPC MFG Agreement**
  - Reference agreement for legal review available on WPC website
  - When ready to sign submit an email to the WPC requesting a company specific agreement
    - Include signatory email contact info in the request
    - Inform the WPC the MFG has selected Microchip as their MCSP
- **Provide PTMC and Qi ID to Microchip**
- **Microchip does the rest**

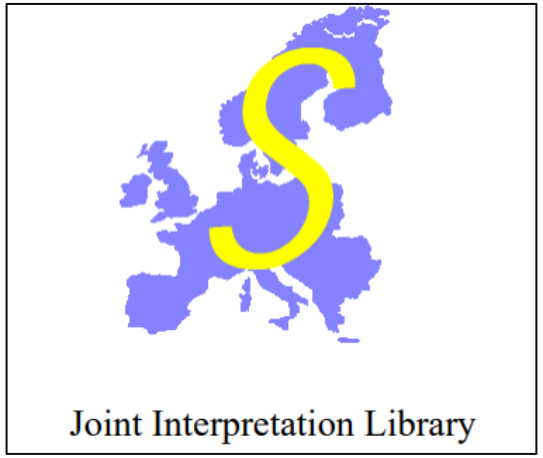
Licensed MFG CA Certificate Chain Setup



Joint Interpretation Library (JIL)

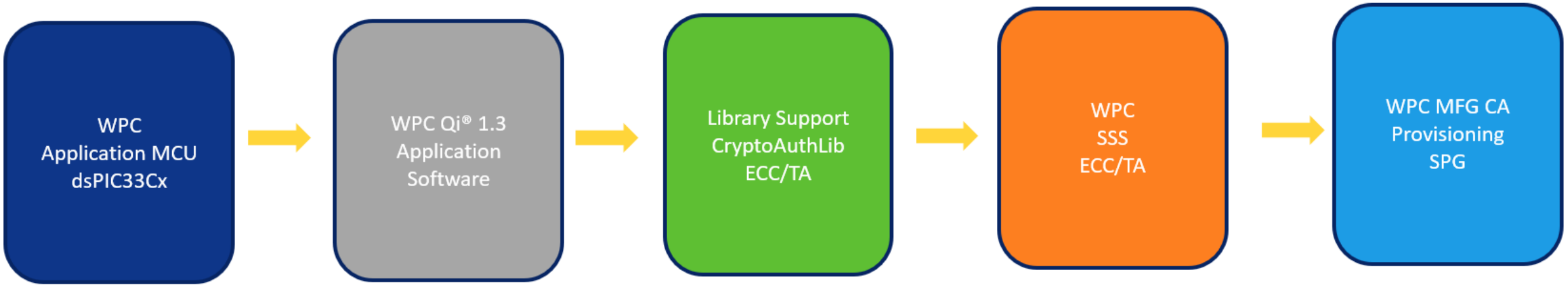
- JIL is a globally recognized security assessment scoring system
- White-box analysis has been performed by Serma
- Point score awarded based on difficulty of attack

Range of values*	TOE resistant to attackers with attack potential of:
0-15	No rating
16-20	Basic
21-24	Enhanced-Basic
25-30	Moderate
31 and above	High



- ECC608A and TA100 have achieved JIL High (WPC compliant SSS)
- 1-page summary assessment publicly available

Microchip WPC 1-Stop-Shop



WIRELESS POWER CONSORTIUM

- dsPIC33 + TA100 bundle provides advantage
  - System integration
  - Pricing discount

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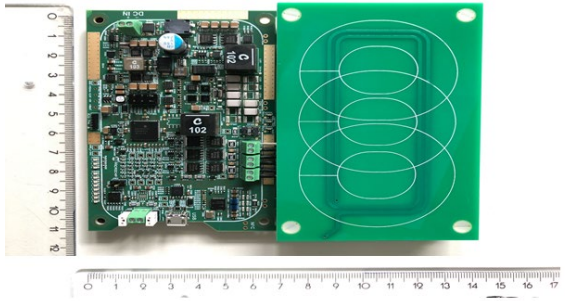
Qi® 1.3 dsPIC33/TA100/ECC608 Development Kits

Qi 1.3 MPA22 Reference Design



ATECC608A Trust add-on board for the CryptoAuth Trust Platform:

https://www.microchip.com/DevelopmentTools/ProductDetails/PartNO/DT100104

MP-A13 Qi 1.3 Reference Design

TA100 8-Pin Mikrobus Socket Board (AC164167):

https://www.microchip.com/DevelopmentTools/ProductDetails/PartNO/AC164167

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Thank You

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