

EMBEDDED AI CLASSIFICATION & DF SOLUTION OVERVIEW

Epiq is well known for providing the smallest, high performance software defined radios (SDRs) available, with wide deployment in difficult RF environments. Epiq SDRs marry extremely well with processing engines such as those provided by DeepSig, which utilize **artificial intelligence (AI)** to enable new levels of signal identification and direction finding capabilities.

We have taken this a step further with our newly introduced Matchstiq X-series and G-series radios with embedded graphical processing units (GPUs) that allow DeepSig's applications to run natively on-board. These new products make it possible to deploy AI-enabled intelligence on the smallest possible attritable, man-pack and other small form factor (SFF) platforms. The OmniSIG products perfectly compliment any Epiq radio,

Why DeepSig & Epiq?

"The combination of OmniSIG and Epiq's G-series and X40 SDRs is incredibly powerful. Machine learned signal identification and direction finding can now fit in the palm of your hand and be deployed on commercial timescales and volumes for applications like UAS payloads."

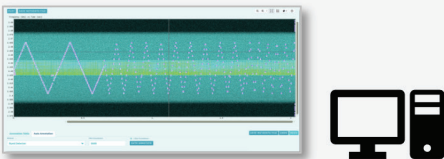
Tim Newman,

Vice President, Federal Partnerships, DeepSig

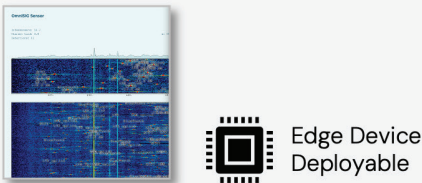
but specifically for the **GPU-enabled** products Epiq now ships each **X-series** and **G-series** products with an evaluation copy of OmniSIG.

DeepSig Solutions

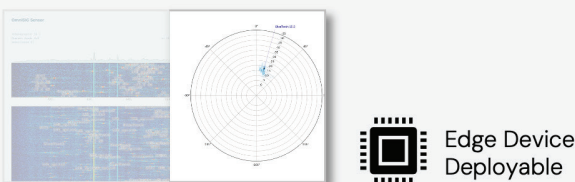
Model Training
OmniSIG Studio



Model Deployment
OmniSIG

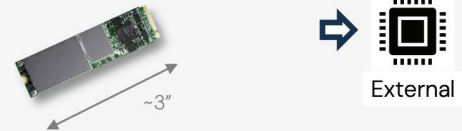


Optional Deployment Capability
OmniSIG DF

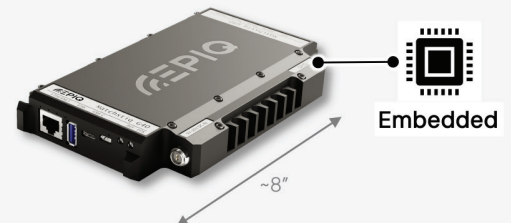


Example Epiq SFF Platforms

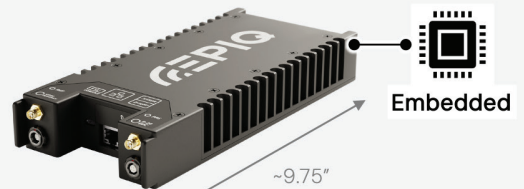
NV100
2 channels



G40
4 channels
✓ GPU
✓ DeepSig Pre-Loaded



X40
4 channels
✓ GPU
✓ DeepSig Pre-Loaded



NV800
8 channels



Epiq Hardware

- Linearity/ high signal quality quality front ends.
- Small sizes.
- Affordable for high volume platforms.
- Cross-product firmware compatibility.
- Models equipped with GPUs enable embedded all-in-one solution.

DeepSig Software

- Self-contained, field-deployable AI models.
- Millisecond time slices simultaneously classified and DF'd.
- Independent samples that can be averaged together.
- Combined identification and bearing meta-data to standard SigMF output stream.

Combined

- Smaller platforms than ever before with more powerful capabilities to identify and locate signals.
- Rapidly updated in the field.
- Surveying & DF even with frequency hopped signals & transient signals.
- Fast identification of fake base stations, unknown signals-types.
- Easy to evaluate with demo software and default classification model loaded onto select Epiq products.
- Single source for SDR and software supply and support

Each system will be pre-loaded with a detection model to support the real-time classification of LTE and Bluetooth signals received. No internet connection is needed, and all of this will be available through OmniSIG's web UI that is served up right from the Matchstiq platform: Connect your PC, open up a web browser, and you'll be observing the power of AI/ML processing on a small form factor SDR in real time.

The figure on the previous page shows just a few examples of Epiq SFF radios that can either serve as high quality front-ends, or actually host the application software. For DF, more channels are obviously better. On the application software side, DeepSig provides a detection model (**OmniSIG** and the optional **OmniSIG DF**) suitable for embedding. For new signal types or to generally enhance the library of known signals, **OmniSIG Studio** is used on a more powerful computer and can output an updated detection model to deploy widely in under a day. More details are given in a separate note.

[Contact us](#) for more in-depth discussions of your unique needs, or visit [our website](#). For more in-depth information on DeepSig's capabilities [contact them](#), or visit [their website](#).

ABOUT EPIQ

Epiq Solutions develops cutting edge tools for engineering teams and government-focused organizations requiring situational awareness and detailed insight into their RF environments in order to identify and act against wireless threats.