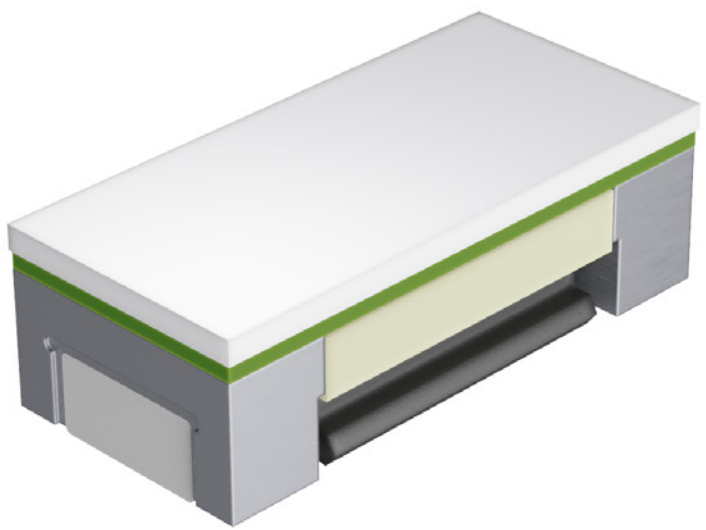
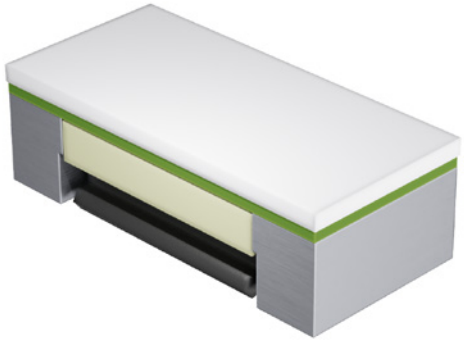
X-Tile HS

Four-side tileable, high-speed medical CT detector



- Scalable detector configurations from 32 to 256 slices and beyond, using one standard module
- Flexible detector geometries with minimal inactive areas between modules
- High-speed acquisition for rapid gantry rotation and stationary multi-source CT, with linear response down to 50 µs
- High signal-to-noise performance and wide dynamic range, supporting clean projection data and image sharpness for low-dose medical imaging
- Compact form factor and low thermal load to simplify gantry design and cooling
- Accurate mechanical positioning and ASG alignment with precision mounting features
- Flexible readout integration with the customer's own design, X-Tile HS DAS, or a complete readout chain designed to integrate with DT's AIDA platform





Built to scale and engineered for speed, X-Tile HS combines true four-side tileability with acquisition down to 50 µs in one standard CT detector module.

Designed for advanced rotating and static CT systems, X-Tile HS combines high-speed acquisition, low noise, and low power consumption in a compact detector module. As a standard building block for medical imaging, it supports flexible scaling from 32-slice systems to 64-, 128-, and 256-slice configurations and beyond, as well as stationary multi-source CT architectures.

True four-side tileability enables expansion in both axial (Z) and transaxial (X) directions. A uniform pixel pitch across module boundaries minimizes inactive areas and enables flexible detector geometries without the need to develop a dedicated module for each system.

A medical-grade GOS scintillator, backside-illuminated (BSI) photodiode, and on-module 24-bit ADC provide a 121 dB dynamic range and high signal-to-noise performance. Low afterglow and suppressed optical crosstalk support clean projection data and image sharpness for low-dose medical imaging.

Configurable integration times support both rotating CT and the short X-ray pulses of stationary multi-source CT systems, with linear response maintained down to 50 µs. At just 11.35 mm high, the module supports efficient use of radial space inside rotating CT gantries. Low power dissipation reduces thermal load and simplifies cooling, while mounting and alignment features support accurate positioning and anti-scatter grid (ASG) alignment.

X-Tile HS supports multiple ways of building a CT system. Manufacturers with their own readout electronics can integrate X-Tile HS directly as a standard detector module or combine it with X-Tile HS DAS. For manufacturers looking for a complete signal path from detector to host, DT's scalable, modular AIDA platform provides an integrated solution designed to reduce development effort and integration risk.

Key features

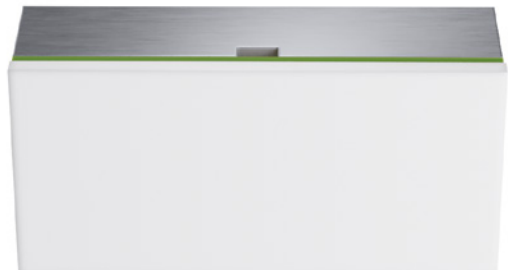
- Four-side tileable architecture designed for uniform pixel pitch across module boundaries
- Medical-grade, low-afterglow GOS scintillator matched to BSI photodiode technology
- On-module 24-bit ADC with simultaneous sampling of all channels and autoscaling full-scale range
- Configurable integration time
- Compact module with mounting and alignment features for accurate positioning and ASG alignment
- Embedded tungsten shielding
- High-speed LVDS digital interface
- Supported by X-Tile HS DAS and designed to integrate with the scalable, modular AIDA readout platform

Applications

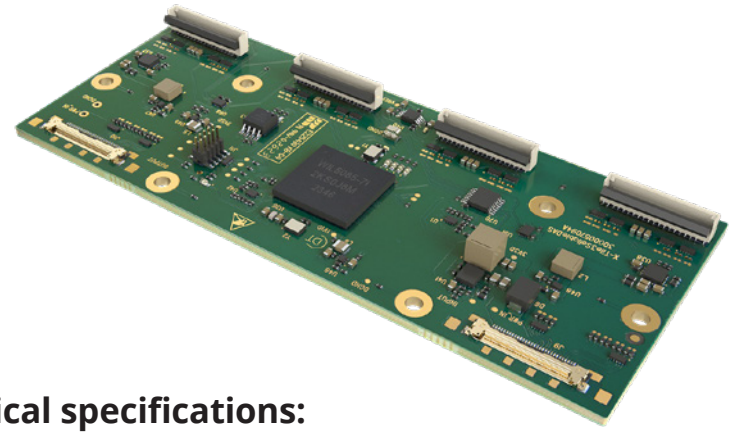
- Diagnostic whole-body and cardiac CT
- Image-guided radiotherapy
- Compact and mobile CT
- Stationary multi-source CT

Technical specifications: X-Tile HS detector

Product	X-Tile HS
Anatomical coverage in iso-center (mm)	20 (at standard CT geometry)
Tileability	Four-side (Z and X directions)
Slices (pixels in Z-axis)	32
Pixels in X-axis	16
Total number of pixels	512
Pixel pitch in Z-axis (mm)	1.12
Pixel pitch in X-axis (mm)	1.06
Scintillator material	GOS
Photodiode technology	Backside-illuminated (BSI)
AD conversion	24-bit
Full scale range (pC)	320, auto scale
Dynamic range (dB)	121
Integration time (µs)	50–1,600
Optical crosstalk	< 10%
Electrical interface	High-speed digital LVDS
Thermal sensor	Integrated
Mounting	1 × M3 mounting hole, 2 alignment pin holes
Power consumption (W)	0.65 (typical @ 25 °C)
Power supply (V DC)	1.8 – 1.9
Performance temperature	20 °C to 45 °C
Operating humidity	10% to 80% RH, non-condensing
Mechanical footprint (mm)	35.74 × 16.86 x 11.35 mm

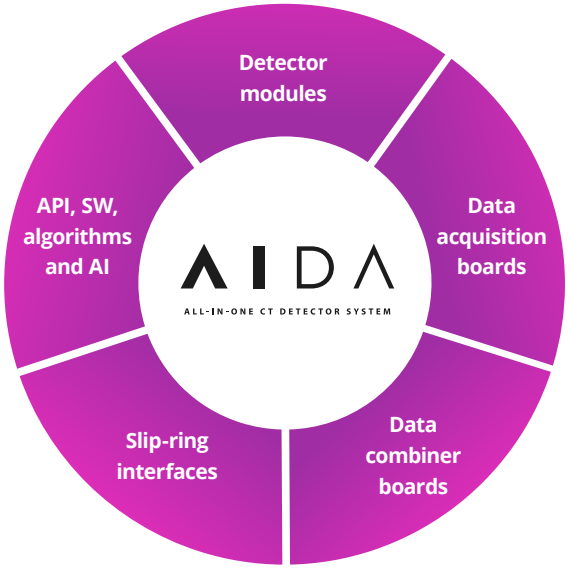






Technical specifications: X-Tile HS DAS

Parameter	Value
Detector support	Up to 8 X-Tile HS modules (2 × 4 tile matrix)
Max pixel capacity	4,096
Slices	128 per DAS; 256 with two DAS
Input interface (detector –> DAS)	High-speed LVDS digital data
Output interface (DAS –> readout)	DT proprietary high-speed LVDS X-Link
Power input	12–24 V DC ±10%
Power to detector	1.85 V AVDD, 1.25 V VREF
Power consumption (W)	~4W (with full load, detector excluded)
Performance temperature	20 °C to 45 °C
Operating humidity	10% to 80% RH, non-condensing
Mounting	6 × M3 mounting holes
Mechanical footprint (mm)	132 (L) × 55 (W) × 12.5 (H)



Complete imaging chain with AIDA

While X-Tile HS delivers detector-level performance, AIDA is designed to provide the subsystem architecture that connects the detector seamlessly to the full CT imaging chain. It manages high-speed data handling, synchronization, timing control, and power distribution through a tightly integrated platform that includes a dedicated detector-side DAS.

AIDA provides a complete detector-to-processing imaging chain with deterministic synchronization and reliable high-speed data aggregation. Its scalable architecture supports both rotating and static CT systems while reducing subsystem development complexity, lowering integration risk, and accelerating system bring-up.

Contact DT for further details on AIDA support for your CT system.

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