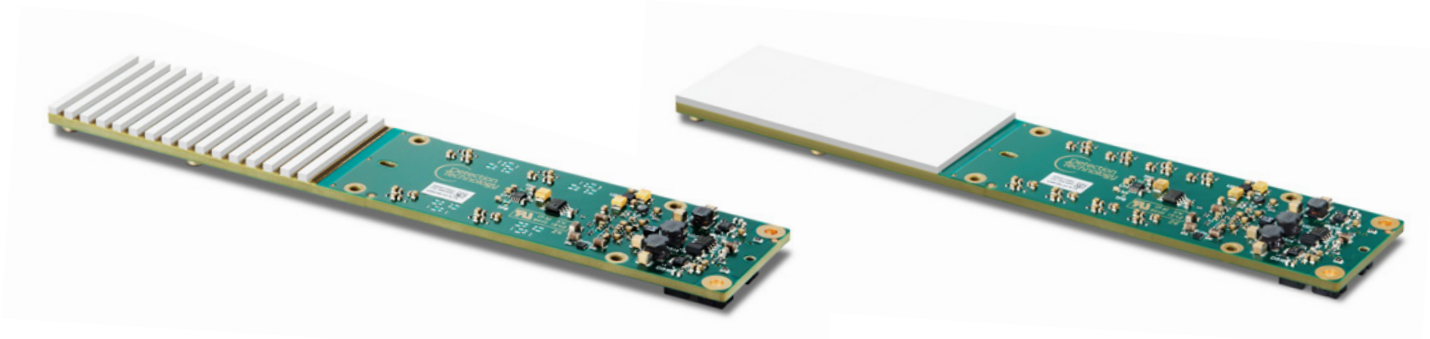


A large, glowing, circular graphic with concentric rings and a central 'X' symbol, set against a dark, starry background.

# X AURORA<sup>®</sup> CT

**Off-the-shelf CT detector subsystem**

- Sets a new industry standard as the first plug-and-play type security CT detector subsystem including detectors, a controller and a SW library
- Speeds up the time-to-market and decreases total costs
- Enables to meet the most stringent security equipment standards in aviation, such as ECAC EDSCB C3, ECAC EDS Standard 3.1, and TSA AT-2 TIER II
- Provides superior image quality without artifacts in fast scanning speeds
- Built on an easily scalable, modular platform that scales from 16-slice up to 64-slice system configurations
- Features robust structure, and reliable mechanical and electrical interfaces
- Comes with high radiation hardness for long product lifetime.



**Aurora CT** is the industry's first off-the-shelf detector subsystem for security CT (computed tomography) applications. The plug-and-play-type solution includes ready-made, multislice detector boards, a control unit and a software library. Aurora CT speeds up time-to-market and decreases total costs of X-ray imaging systems that meet the most stringent security equipment standards in aviation.

Aurora CT is built on the well-proven, modular, and easily scalable Aurora platform that is powered by a 20-bit, application-optimized single-chip ASIC. With the highest level of integration and a simplified system design, Aurora CT provides superior image quality, features robust structure and reliable mechanical and electrical interfaces, minimizes risks, and streamlines supply chains.

The 3-sided tileable detector modules easily scale from 16-slice up to 64-slice system configurations to cover a wide range of set-ups, from entry-level checkpoint carry-on baggage scanners to large hold baggage CT scanners. The modules are available in flexible single-energy constructions, which also support dual-energy configurations. Aurora CT withstands G-forces of rotating CT systems up to 20 G, and its design ensures very high radiation hardness for long product lifetime.

Aurora CT comes with sparse and full pixel matrix options. The detector matrix is built on individual low-noise BSI (backside-illuminated) photodiodes for ultra-low crosstalk and low noise to meet high spatial resolution and penetration performance requirements. The scintillator matrix has high light output, and is practically afterglow-

free to ensure high image quality without artifacts at fast scanning speeds.

The subsystem includes X-DCB (data combiner board) as an essential part of the DAS. Precise synchronization with a rotating gantry can be implemented with flexible encoder interface. Aurora CT has an optical, high-speed datalink from the DAS to a host computer. This is a proven solution for system integration with the data transmission over rotating slip ring. Aurora CT detectors and X-DCB support remote firmware updates for smooth system development and possible adaptation to new requirements. Various development and diagnostics functions are included to confirm the status, and monitor the health of the system. In addition, software library is available to support rapid integration of the inspection system.

## Key features of detector modules

- Head-to-head and side-by-side tileable detector modules
- Flexible single and dual energy configurations
- Application-optimized 20-bit, single-chip ASIC with adjustable full-scale range and 16-bit data output
- Detector matrix built on individual low-noise BSI photodiodes
- High-light output, afterglow-free scintillator matrix
- Sparse and full pixel matrix options
- Wide sensitivity range from 0.25 pF to 31.75 pF with 127 steps
- G-force compatible up to 20 G
- Centralized remote firmware update by the X-DCB
- Local diagnostics functions: test patterns, temperature and voltage monitoring
- RoHS and EMC compliance

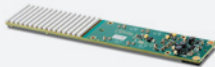
## Key features of X-DCB

- High-throughput data transfer of 1.6 Gbps with an easy-to-use and reliable Camera Link interface to host computer
- Single +24 VDC power input for the complete detector sub-system
- Connection for up to 80 pcs of 512-channel detector cards, larger configurations are possible by connecting multiple X-DCB boards in parallel
- Configurable external RS-422/485 encoder interface
- Centralized remote firmware update by the X-DCB
- Local diagnostics functions: test patterns, temperature and voltage monitoring
- RoHS and EMC compliance


## Applications

- Cabin baggage (CB) and hold baggage (HB) inspection in aviation
- High-end air cargo and logistics scanning
- Fast 3D-imaging for in-line industrial scanning.

## Key characteristics

Feature	SDBB-ST16SE	SDBB-ST32SE
		
Product code	3000026770	3000026771
Pixel size in X-axis (mm)	2.5	
Pixel size in Z-axis (mm)	2.75	
Pixel active area (PD) (mm)	2.3 x 2.55	
Row pitch	5.5 mm	2.75 mm
Scintillator material	1.8 mm ceramic GOS	
Mechanical width (X-axis)	40.3 mm ± 0.1 mm	
Mechanical length (Z-axis)	208.4 mm ± 0.2 mm	
Mechanical height (Y-axis)	<15 mm	
Number of pixels	256	512
Number of pixels in X-axis	16	
Number of pixels in Z-axis	16	32
Minimum view time	350 us	
A/D resolution	20 bits with 16-bit data transmission	
Sensitivity range	0.25 pF—31.75 pF, 127 steps	
Interface to control unit	X-Link, 14-pin connector	
X-ray response non-uniformity, within row	-15% ~+15%	
X-ray response non-uniformity, row to row	-20% ~+20%	
X-ray response non-uniformity, detector to detector	-20% ~+20%	
Dynamic range	>10000:1 @ 6 pF	
Operation voltage	+24 VDC	
Power consumption	2.4 W (typical)	3.2 W (typical)
Weight	250 g	280 g
G-force	Max 20 G	
Radiation hardness	Signal drop <40% @ 100 kGy, 160–180 kVp For electronics, the maximum allowed X-ray dose after shielding: 200 Gy	
Operating temperature	0 °C—+50 °C	
Operating humidity	5%—85% RH (non-condensing)	
Storage temperature	-40 °C—+60 °C	
Storage humidity	5%—95% RH (non-condensing)	

## Technical specifications of X-DCB KIT

Feature	X-DCB KIT
	
Product code	3000026772
Number of X-Link segments	8 segments
Detector cards for each X-Link segment	Max 10 pcs
Maximum number of detector cards	Max 80 pcs
Minimum view time	350 us
Maximum throughput	1.6 Gbps
Maximum pixel quantity	40,960
Supported data interface	Camera Link
Other interfaces	ABZ encoder, Command, Power input
Voltage input	+24 V
Power consumption	5.2 W
G-force	20 G
Mechanical dimensions (WxLxH)	100 mm x 215 mm x 35mm
Weight	290 g
Operating temperature	0 °C—+50 °C
Operating humidity	5 %—85 % RH (non-condensing)
Storage temperature	-40 °C—+60 °C
Storage humidity	5 %—95 % RH (non-condensing)

Interfaces. An example of a subsystem connection topology.

