

# SMARTWORKS™ NGX SERIES

CALL RECORDING FOR PROPRIETARY PBXS

## Standard Features for SmartWORKS™ Family of Call Recording Products

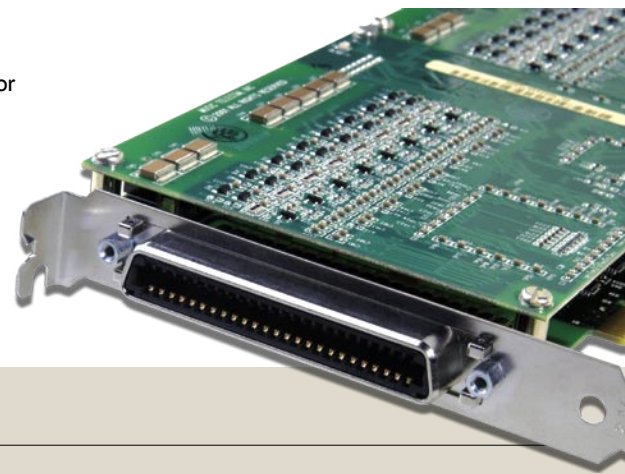
The SmartWORKS™ API provides a common interface that controls the following call recording features:

- Media Control - CODECS
- Tone Detection / Generation
- CallerID/FSK/DTMF/MF Detection
- Activity / Silence Detectors
- Switching (H.100 and MVIP)
- Automatic Gain Control (AGC)
- Automatic Volume Control (AVC)
- Stereo Recording
- Echo Cancellation
- Call Progress Monitoring (CPM)
- Full-duplex Channels
- Media Streaming
- Live Monitoring
- Start/Stop Call Recording Triggers
- Beep tone generation for passive mode



Since 1991, Ai-Logix has designed boards used in interactive and passive telephony applications. With global support for all types of telephone and radio systems - analog, digital, and enterprise PBXs, Ai-Logix products have set a new world standard in telephony communications. A single API, combined with event driven reporting simplifies application development by providing one standard for all types of networks.

The SmartWORKS™ NGX is an all-in-one resource for logging behind a PBX. Every key pressed, call taken, and telephone action performed by an agent is automatically decoded and sent to the recording application. A powerful set of features, combined with PBX integration, makes the NGX a true single slot solution for call logging application providers.



## Key Features and Benefits

### Multiple PBX support

A single board interfaces with a majority of industry leading PBXs to simplify the design of global call recording applications.

### Firmware Upgraded

A simple firmware upgrade allows the NGX to adapt to different PBX environments.

### Wide Spectrum of Trigger Events

Initiate and terminate recordings based on voice activity, raw D-channel, or Call Progress Monitoring (CPM) events.

### Summation

Monitors up to 24 channels in real-time with on-board audio jack resources.

### CODEC Support

SmartWORKS™ offers a large selection of voice CODECS.(including G.723.1, G.729A and MS GSM)

## Tap Environment

The NGX is designed for tapping behind a proprietary PBX. Residing between the PBX and agent phones, the SmartWORKS™ NGX's high impedance receivers record both sides of a call without interrupting service. The NGX is available in 8,16,and 24 port configurations. The SmartWORKS™ API supports a total of 512 channels per system. As a result, the SmartWORKS™ NGX is ideal for low to high-density environments.

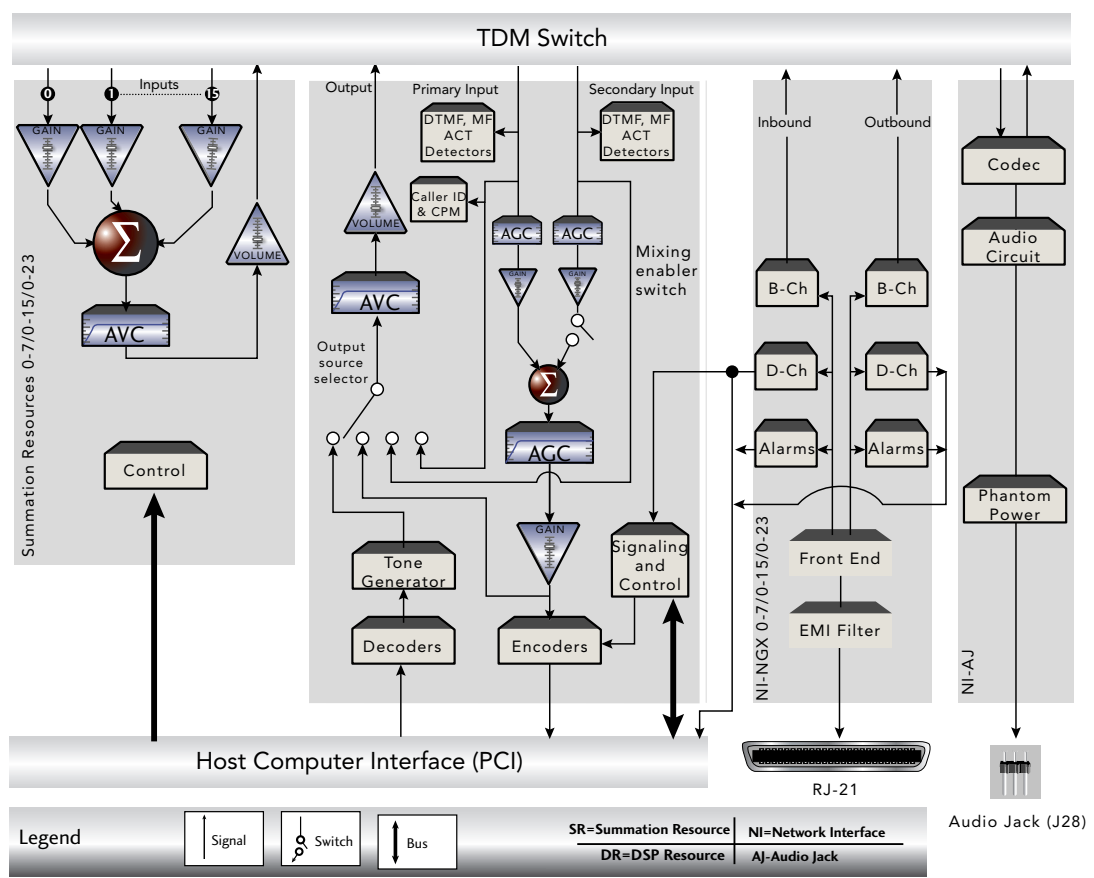
## Extensive PBX Support

Designed with international deployment in mind, the SmartWORKS™ NGX taps 2-wire, 4-wire, BRI and full duplex PBX's. The list of PBXs the NGX supports is constantly growing. Contact your Ai-Logix sales representative for more information.

## Built in Performance Monitoring

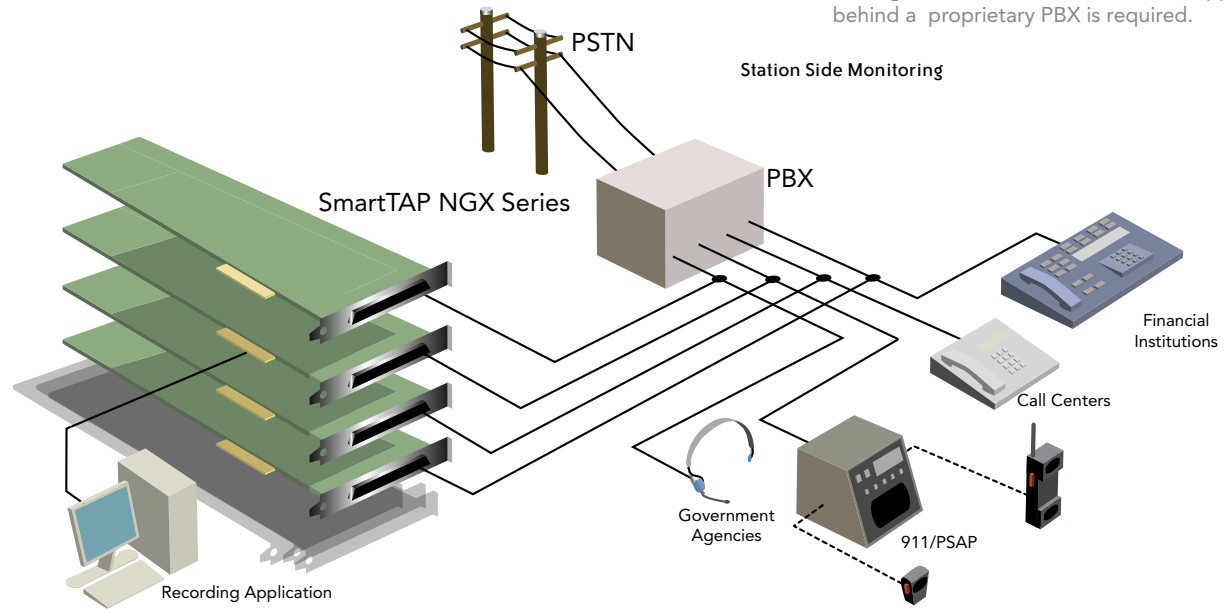
The SmartWORKS™ API provides framer alarms and network statistics to pass easily into performance monitoring applications. Event driven framer alarms are generated with a loss of signal condition. Network statistics are available for both sides of the conversation, incoming and outgoing. Statistics such as synchronization errors, line amplitude, noise or clipping are available via a simple API function call.

## NGX Logical Card Model



## NGX Application Model

Applied Use: The SmartWORKS™ NGX is perfectly suited for information centers, financial trading centers or call centers where tapping behind a proprietary PBX is required.



**SMARTWORKS™**  
 INTELLIGENT CALL RECORDING

Technical Specs **NGX SERIES**

# PRODUCT SPECIFICATIONS · SMARTWORKS™ NGX

## HARDWARE SYSTEM REQUIREMENTS

Pentium 4 or equivalent · 2 GHz or better  
PCI motherboard or passive backplane with 3.3V power supply, PCI 2.2 bus

## OPERATING SYSTEMS

Windows 2000 · Windows XP  
Windows 2003 32 bit · Linux (Call for variant details)

## TECHNICAL SPECIFICATIONS

Max boards per system: ..... Any combination up to 512 ports  
Max ports per system: ..... Up to 512  
Resource Sharing Bus: ..... MVIP or H.100  
Boards Status: ..... On-board LEDs  
Clocking: ..... Master/Slave

## ENVIRONMENTAL CONDITIONS

Operating Temperature: ..... 0C to +60C  
Storage Temperature: ..... -20C to +85C  
Humidity: ..... 8% to 80% non-condensing  
Storage humidity: ..... 8% to 80% non-condensing

## PHYSICAL CHARACTERISTICS

Form Factor: ..... Full-size PCI card

## POWER REQUIREMENTS

SmartWORKS™ NGX (base)  
+ 3.3 VDC: ..... 0.9 A  
+5 VDC: ..... 15 mA  
-12 VDC: ..... 25 mA  
+12 VDC: ..... 25 mA  
SmartWORKS™ NGX (expanded 24 channels)  
+ 3.3 VDC: ..... 1.6 A  
+5 VDC: ..... 15 mA  
-12 VDC: ..... 35 mA  
+12 VDC: ..... 35 mA

## TAP INTERFACE

Insertion loss: ..... <1dB  
Isolation: ..... Galvanic 500VDC +/-10%, 100VRMS 1 sec  
Impedance: ..... Soft-Switchable 1KOhms/100Ohms  
External connector: ..... RJ-21X 25 Pair female

## SDK

Ai-Logix Native SmartWORKS™ API  
SmartControl (Control Panel)  
SmartVIEW (Card functionality test application)

## HOST INTERFACE

Bus Compatibility: ..... Complies with PCISIG Bus Specifications, Rev. 2.2  
Bus Speed: ..... 33 MHz  
Bus Mode: ..... 32 bit bus master/target

Audio Connector: ..... 3-pin 0.1" ctr header  
Output impedance: ..... 300Ohms  
Input impedance: ..... 33KOhms  
Return loss: ..... >25dB  
Mic bias: ..... +5VDC @ 4.7KOhms  
Input gain: ..... +9dB  
Output gain: ..... 2.6dBm @ 300Ohms  
Full scale input: ..... 370 mVRMS  
Full scale output: ..... 1.5 VRMS open circuit

## PBX INTERFACE

PBX Support: ..... Software Configurable  
see [www.ai-logix.com](http://www.ai-logix.com) for a complete list

## AUDIO SIGNAL

Receive range: ..... -68 dBm to +3 dBm  
Input gain control: ..... +24 to -50 dB  
Silence Detection: ..... Programmable from API  
Transmit volume control: ..... +24 to -50 dB to MVIP/H.100  
Automatic Gain Control (AGC): ..... Programmable from API  
Automatic Volume Control (AVC): ..... Programmable from API  
Activity Detection: ..... Programmable from API  
Frequency Response: ..... 300 - 3400 Hz (+/- 3dB)

## AUDIO DIGITIZING (ENCODING & DECODING)

5.3 Kb/s ..... G.723.1  
6.3 Kb/s ..... G.723.1  
8 Kb/s: ..... G.729A  
13 Kb/s: ..... GSM 6.10, Microsoft GSM  
16 Kb/s: ..... G.726  
24 Kb/s: ..... G.726, OKI  
32 Kb/s: ..... G.726, OKI  
40 Kb/s: ..... G.726  
64 Kb/s: .....  $\mu$ -law or A-law per G.711,  
8 bit linear PCM (signed & unsigned)  
96 Kb/s ..... 6 Khz 16 bit linear PCM(signed)  
128 Kb/s: ..... 16 bit linear PCM (signed & unsigned)  
Wave file formats: ..... Microsoft GSM, Linear signed  
8 & 16-bit PCM  
Digitization selection: ..... Programmable per channel, independent for encode and decode

## DTMF TONE DETECTION

DTMF digits: ..... 0 - 9, \*, #, A, B, C, D  
Dynamic range: ..... -38 dBm to 0 dBm  
Minimum tone detection: ..... 40 ms /programmable  
Interdigit timing: ..... 40 ms min.  
Acceptable twist: ..... Per LSSGR sec. 6, 8 dB forward, 4 dB reverse  
Frequency variation: ..... Accept all +/- 1.5%, reject all +/-2.5%  
Noise tolerance: ..... Per LSSGR sec. 6  
Talk off: ..... Bellcore TR-TSY-000762

## ANALOG JACK

## D CHANNEL EVENTS

The following types of D-channel events are decoded:

### *PBX Event (Command Events):*

Generated by the PBX and passed to the phone as a command to perform some type of action.

**Signaling** - these events indicate a call progress tone (dial tone, ring tones), or audio changes

**LEDs** - these events correspond to light changes on the phone

**Display** - these events indicate that the LCD on the phone has been updated. These are usually related to the clock display, or messages displayed on the LCD.

### *Phone Events*

Generated by the phone indicating an action has been taken (i.e. button pressed).

**Hook State** - off hook and on hook changes occur when the handset is removed or replaced

**Button events** - indicate that a button on the phone was used. For example: digits pressed, speaker buttons etc.

## SAFETY AND CERTIFICATIONS

Telecom: ..... DOC  
 Emissions: ..... FCC Part 15 class A · EN 55022  
 Immunity: ..... EN 55024  
 Safety: ..... EN 60950  
 Estimated MTBF: ..... 250,000 hours per Bellcore Method I

## MODELS AVAILABLE

NGX800 ..... 8 port  
 NGX1600 ..... 16 port  
 NGX2400 ..... 24 port  
 MX80 ..... 8 port daughtercard

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