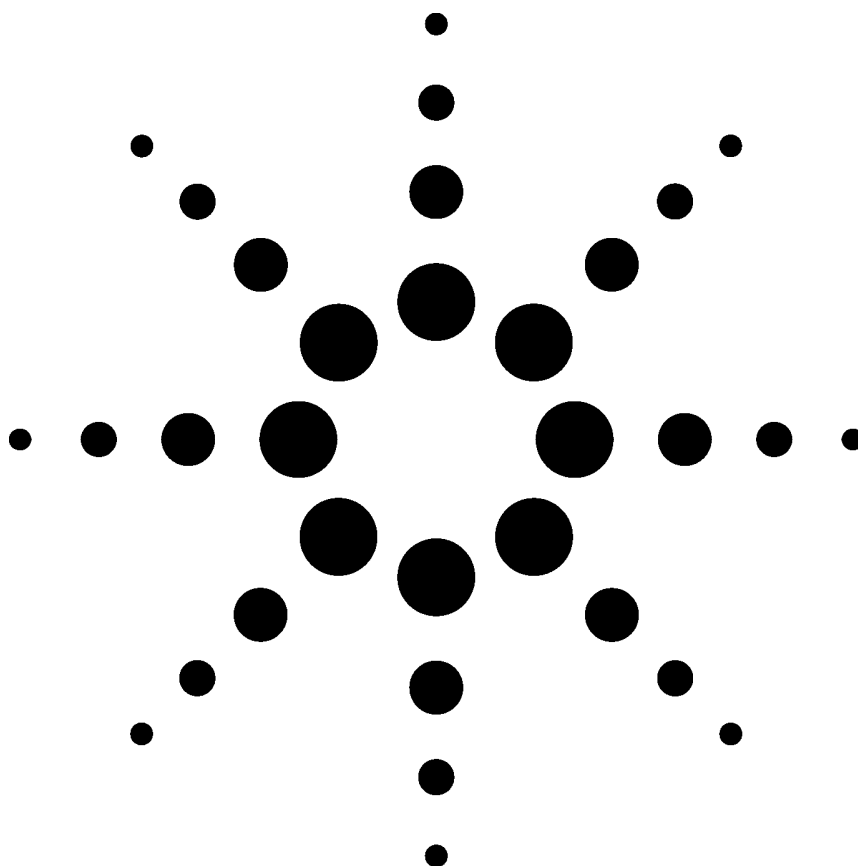


# **Agilent N2X Configuration Guide**



**April, 2009**



**Agilent Technologies**

# Agilent N2X

## N2X Overview

Agilent N2X is the industry's most comprehensive test solution for testing the development and deployment of network services for converging network infrastructures. Service Providers, Network Equipment Manufacturers (NEMs), and component manufacturers can verify service attributes of entire networks end-to-end, while also isolating problems down to individual networking devices and subsystems.

The Agilent N2X Multiservices Test Solution is the first to combine leading-edge services testing such as Metro Ethernet, MPLS L2/3 VPNs, Triple-play services and Multicast services, over the latest converging infrastructures such as MPLS, IPV6, and next generation SONET/SDH. N2X can test a wide variety of network infrastructure implementations from the edge/access through metro transport and core via a broad range of interfaces from 10/100/1000 Mbps Ethernet through to the industry's only 40Gbps OC768.

## N2X System Components

The Agilent N2X test system includes several hardware and software components.

The N2X hardware consists of a system controller and multiple chassis containing purpose-built Test Cards for specific test requirements.

- **System Controller** – Provides a graphical interface to drive applications running on the Test Cards.
- **Chassis** – The highly compact 4-slot Chassis and 2-slot portable chassis are available for both development environment and in-field use.
- **Interface Cards** – High-density, scalable and flexible N2X Test Cards are optimized for specific test needs of Next Generations Transport, Carrier Routing, Enterprise networks and devices. Each card features its own high-performance on-board CPU and distributed processing power to allow synchronized performance measurements across multiple chassis.

The N2X software consists of Base Software, Protocol Software and Productivity Advantage Software. The N2X software licenses are installed on the System Controller.

- **Base Software** – Enables test capabilities for transport (SONET/SDH) or packet/protocol (IP) testing.
- **Protocol Software** – The N2X Protocol Software provides protocol emulation covering a wide range of network protocols.
- **Productivity Advantage Software** – The N2X Productivity Advantage delivers a rich set of automation tools designed to maximize testing productivity.

## N2X Co-existence

Agilent N2X ensures application and chassis co-existence. Software application co-existence implies N2X Packets & Protocols application (E7880B or E7881B) and N2X Multi-services Transport application (J7251A) can operate simultaneously on the same controller. Also any combination of XP, XR, XS and XM cards can be used in same chassis.

N2X also supports version co-existence functionality that enables different versions of the same application to be operated simultaneously.

## N2X Test Solution Bundles

It is recommended the N2X chassis, system controller and software be ordered with the N2X test solution bundles to ensure optimum value.

Currently available bundles are:

- **N5555A** Packets and Protocols Test Solution Bundle
- **N5556A** Multi-services Transport Test Solution Bundle

Please follow steps 1, 2 and 3 in the next sections to select the proper options of the bundle

# Configuring your N2X test system

In order to configure your N2X system, please go through the following steps:

- Step 1. Choose your required test solution
- Step 2. Choose chassis
- Step 3. Choose System Controller
- Step 4. Choose Base Software License
- Step 5. Choose Protocol Software License
- Step 6. Choose Productivity Advantage Software
- Step 7. Choose Test Interface Cards for your N2X system (Not ordered via test solution bundle)
- Step 8. Choose Accessories

The following section will guide you through configuring your new N2X test solution. For add-ons to existing systems, order without using the N5555A or N5556A bundles.

## Step 1: Choose your required test solution

N5555A	N2X Packets & Protocols Test Solution	N5556A	N2X Multi-Services Transport Test Solution
<b>Configure Bundle</b>		<b>Configure Bundle</b>	
<b>Chassis</b>		<b>Chassis</b>	
N5540A	N2X 2-slot Portable Chassis	N5540A	N2X 2-slot Portable Chassis
N5541A	N2X 4-slot Chassis	N5541A	N2X 4-slot Chassis
N5542A	N2X 4-slot Chassis with ext BITS/MITS clock input	N5542A	N2X 4-slot Chassis with ext BITS/MITS clock input
<b>Controller</b>		<b>Controller</b>	
N5543E	N2X Laptop	N5543E	N2X Laptop
N5544C	N2X Rackmount	N5544C	N2X Rackmount
N5545C	N2X High Performance Rackmount	N5545C	N2X High Performance Rackmount
<b>Base Software</b>		<b>Base Software</b>	
E7880B	Packets Application	J7251A	Multi-Services Transport Application
E7881B	Packets & Protocols Application		
<b>Support</b>		<b>Support</b>	
PS-S12-101	1yr software support & updates (included)	PS-S12-101	1yr software support & updates (included)
PS-S12-102	2yr software support & updates	PS-S12-102	2yr software support & updates
PS-S12-103	3yr software support & updates	PS-S12-103	3yr software support & updates

## Step 2: Choose chassis for your N2X system

Order #	Description	Requires	Literature #
<b>N5555A-N5540A</b>	<b>N2X 2-slot Portable Chassis</b>		<a href="#">5859-1531EN</a>
N5540A-059	Include N2X chassis-to-chassis cable		
<b>N5555A-N5541A</b>	<b>N2X 4-slot Chassis</b>		<a href="#">5859-1531EN</a>
N5541A-059	Include N2X chassis-to-chassis cable		
<b>N5555A-N5542A</b>	<b>N2X 4-slot Chassis with ext BITS/MTS clock input</b>		<a href="#">5859-1531EN</a>
N5542A-059	Include N2X chassis-to-chassis cable		

### Note:

1. **At least one** system chassis is required per N2X test system.
2. **Only one** N2X chassis **per bundle** can be ordered. If multiple chassis are required for your N2X test system, they must be ordered individually and not part of the bundle.
3. **Multiple Bundles** can be ordered.
4. New chassis is shipped with 1-year-Return-to-Agilent warranty. **3-year-Return-to-Agilent warranty** is available by choosing option **R-51B-001-3C**.
5. All chassis require calibration due to internal clock. They are on a **2-year calibration cycle**.
6. Multiple chassis can be stacked to build larger scale system accommodating more interface cards. If multiple-chassis connectivity is required, order the N554xA-059 with each chassis.



N2X 2-slot Portable Chassis & N2X 4-slot Chassis

### Step 3: Choose System Controller for your N2X system

Order #	Description
<a href="#">N5555A-N5543E</a>	<b>N2X Laptop Controller. (Intel core 2 duo 2.26GHz, 2GB RAM, 800MHz DDR2 SDRAM, 80GB HDD, WiFi link, DVD/CDRW, Optical mouse, 14.1" widescreen display, one LAN port)</b>
N5543E-053	N2X 8-port system switch (provided as standard with solution bundle)
N5543E-055	N2X 24-port system switch
<a href="#">N5555A-N5544C</a>	<b>N2X Rackmount Controller (Dual Core 2.0Ghz CPU, 2GB RAM, 80GB HDD, DVD/CDRW, two LAN Ports (both ports are 10/100/1000 BaseT))</b>
N5544C-A02	Flat Panel Display
N5544C-053	N2X 8-port system switch (provided as standard with solution bundle)
N5544C-055	N2X 24-port system switch
N5544C-001	Supply and install 5 Microsoft Terminal Server user licenses
N5544C-002	Supply and install 10 Microsoft Terminal Server user licenses
<a href="#">N5555A-N5545C</a>	<b>N2X High Performance Rackmount Controller (Dual (2x) Dual Core 2.0Ghz CPU, 4GB RAM, 80GB HDD, DVD/CDRW, two LAN Ports)</b>
N5545C-A02	Flat Panel Display
N5545C-053	N2X 8-port system switch
N5545-055	N2X 24-port system switch (provided as standard with solution bundle)
N5545C-001	Supply and install 5 Microsoft Terminal Server user licenses
N5545C-002	Supply and install 10 Microsoft Terminal Server user licenses

Note:

1. **At least one** system controller is required per N2X test system.
2. **Only one** N2X system controller **per bundle** can be ordered. If multiple controllers are required for your N2X test system, they must be ordered individually and not part of the bundle.
3. **Multiple Bundles** can be ordered.
4. New controller is shipped with 1-year-Return-to-Agilent warranty. **3-year-Return-to-Agilent warranty** is available by choosing option **R-51B-001-3C**.
5. The Laptop Controller N5543E supports only one local user.
6. An Ethernet Switch is required for System Controllers that will connect to more than one N2X chassis.

## Step 4: Choose Base Software License for your N2X system

Order #	Description	Requires	Literature #
<b>N5555A-E7880B</b>	<b>Packet Application Software</b>		<a href="#">5988-9860EN</a>
PS-S12-102	1 year software and support contract extended to 2 years	E7880B	
PS-S12-103	1 year software and support contract extended to 3 years	E7880B	
PS-S12-601	Annual Renewal for E7880B Software Support Contract	E7880B	
<b>N5555A-E7881B</b>	<b>Packet &amp; Protocols Application Software.</b>		<a href="#">5988-9949EN</a>
PS-S12-102	1 year software and support contract extended to 2 years	E7881B	
PS-S12-103	1 year software and support contract extended to 3 years	E7881B	
PS-S12-601	Annual Renewal for E7881B Software Support Contract	E7881B	
<b>N5556A-J7251A</b>	<b>Multi-Services Transport Software</b>		
J7251A-AJL	Include Multi-Services user documentation and software media.		
J7251A-NOSW	Do not include user documentation and software media.		

### Note:

1. At least one base software license (among E7880B, E7881B, and J7251A) has to be ordered for a N2X Test System.
2. The E7880B Packet Application Software is a subset of the E7881B Packets & Protocols Application Software
3. PS-S12-101 1 year software and support contract included with initial purchase of base application software.

## Step 5: Choose Protocol Software License for your N2X system

**Note:** For adding software licenses to existing systems, order licenses via E7849A N2X Packets and Protocol Software.  
e.g. E7849A-E7877A

Order #	Description	Requires	Literature #
<b>N5555A-N5595A</b>	<b>ANCP emulation software license</b>	E7881B	<a href="#">5989-8609EN</a>
<b>N5555A-N5588A</b>	<b>SIP emulation software license</b>	E7881B	<a href="#">5989-8610EN</a>
<b>N5555A-E7828A</b>	<b>IGMP Protocol Emulation Software License</b>	E7881B	<a href="#">5989-6940EN</a>
<b>N5555A-E7829A</b>	<b>DHCP, IGMP, PPPoX and L2TP Emulation Bundle Software License</b>	E7881B	<a href="#">URL</a>
<b>N5555A-E7877A</b>	<b>IPTV Video Traffic Generation and Analysis License</b>	E7880B or E7881B	<a href="#">5989-3340EN</a>
<b>N5555A-E7882A</b>	<b>IPv4 Routing Emulation Software License</b>	E7881B	<a href="#">5988-9950EN</a>
<b>N5555A-E7883A</b>	<b>MPLS Signaling Emulation Software License</b>	E7881B	<a href="#">5988-9951EN</a>
<b>N5555A-E7884A</b>	<b>L2 MPLS VPN Application Software License</b>	E7881B, E7882A & E7883A	<a href="#">5988-9952EN</a>
<b>N5555A-E7885A</b>	<b>IPv6 Routing Emulation Software License</b>	E7881B & E7882A	<a href="#">5989-1643EN</a>
<b>N5555A-E7886A</b>	<b>Multicast Routing Emulation Software License</b>	E7881B, E7882A & E7885A	<a href="#">5989-1544EN</a>
<b>N5555A-E7887A</b>	<b>DHCP Protocol Emulation Software License</b>	E7881B	<a href="#">5989-4743EN</a>
<b>N5555A-E7888A</b>	<b>Access Protocol Emulation Software License</b>	E7881B	<a href="#">5989-4747EN</a>
<b>N5555A-E7889A</b>	<b>Optical Signaling Emulation Software License</b>	E7881B & E7882A	<a href="#">5989-1546EN</a>
<b>N5555A-E7896A</b>	<b>DHCPv6 Protocol Emulation Software License</b>	E7881B	<a href="#">5989-5853EN</a>
<b>N5555A-E7897A</b>	<b>MLD Protocol Emulation Software License</b>	E7881B	<a href="#">5989-3340EN</a>
<b>N5555A-E7898A</b>	<b>IPv6 Access Protocol Bundle (DHCPv6 + MLD)</b>	E7881B	<a href="#">5989-3340EN</a>
<b>N5555A-E7879A</b>	<b>MPLS OAM Emulation Software License</b>	E7881B & E7883A	<a href="#">5989-5699EN</a>

Note:

1. Technical and software support for protocol software is included with support options for E7881B.
2. Protocol software license is installed in the controller. As the result, the number of protocol software license has to match the number of controller you want to enable the protocol.

Order #	Description	Requires	Literature #
<b>N5555A-N5572A</b>	<b>Microsoft TV Protocol Decodes Software License (see note below)</b>	E7881B & E7877A	<a href="#">5989-3340EN</a>
Integrated L2-7 Solution – Comprises N5575A and N5576A (see below)			
<b>N5555A-N5575A</b>	<b>Stateful TCP Traffic and Measurement Software License</b>	E7881B	<a href="#">5989-6439EN</a> <a href="#">Demo Video</a>
<b>N5555A-N5576A</b>	<b>Data Application Simulation Software License</b>	E7881B	<a href="#">5989-6439EN</a>
<b>N5555A- N5577A</b>	<b>HTTP Protocol Emulation Software License</b>	E7881B	
<b>N5555A-N5580A</b>	<b>Spanning Tree Protocol (STP, RSTP &amp; MSTP) Emulation Software License</b>	E7881B	<a href="#">5989-6554EN</a>
<b>N5555A-N5583A</b>	<b>BFD Emulation Software License</b>	E7881B	<a href="#">5989-6635EN</a> <a href="#">Demo Video</a>
<b>N5555A-N5582A</b>	<b>LACP Emulation Software License</b>	E7881B	<a href="#">5989-6155EN</a>
<b>N5555A- N5581A</b>	<b>Ethernet OAM CFM Emulation Software License</b>	E7881B	<a href="#">5989-7149EN</a> <a href="#">Demo Video</a>
<b>N5555A-N5585A</b>	<b>Ethernet OAM Y.1731 Emulation Software License</b>	E7881B	<a href="#">5989-7533EN</a> <a href="#">Demo Video</a>
<b>N5555A-N5589A</b>	<b>Link OAM (802.3ah) Emulation Software License</b>	E7881B	

Note:

1. N5572A also requires the customer to have a valid MSTV license agreement with Microsoft Corporation. Customers and users must be network operators that are licensees of Microsoft IPTV products, or equipment manufacturers that support Microsoft IPTV products on behalf of such a licensed network operator. Please contact DNO prior to quoting or ordering this product.



## Step 6: Choose Productivity Advantage Software for your N2X system

N2X Productivity Advantage includes three levels of automation tools: QuickTests, Productivity Applications, and Conformance Test Suites. QuickTests is free of charge. (N2X Productivity Advantage Brochure: 5989-3237EN)

### Productivity Applications

Order #	Description	Requires	Literature #
<b>N5555A-N5570A</b>	<b><i>IPTV Quality of Experience Productivity Application</i></b>	E7881B	<a href="#">5989-3340EN</a>
<b>N5555A-N5571A</b>	<b><i>High Availability Productivity Application Software</i></b>	E7881B & E7882A & E7883A	<a href="#">5989-3272EN</a>
<b>N5555A-N5574A</b>	<b><i>IPTV Quality of Experience Productivity Application for IPv6</i></b>	E7881B & E7882A & E7883A	<a href="#">5989-3340EN</a> <a href="#">Demo Video</a>

### Conformance Test Suites

Order #	Description	Requires	Literature #
<b>N5555A-N5590A</b>	<b><i>MEF 9 Conformance Test Suite Software</i></b>	E7880B or E7881B	<a href="#">5989-2905EN</a>
PS-S12-102	1 year software and support contract extended to 2 years	N5590A	
PS-S12-103	1 year software and support contract extended to 3 years	N5590A	
PS-S12-601	Annual Renewal for N5590A Software Support Contract	N5590A	
<b>N5555A-N5591A</b>	<b><i>MEF 14 Conformance Test Suite Software</i></b>	E7880B or E7881B	<a href="#">5989-2905EN</a>
PS-S12-102	1 year software and support contract extended to 2 years	N5591A	
PS-S12-103	1 year software and support contract extended to 3 years	N5591A	
PS-S12-601	Annual Renewal for N5591A Software Support Contract	N5591A	
<b>N5555A-N5701A</b>	<b><i>IPv6 Conformance Test Suite Software</i></b>	E7880B or E7881B	<a href="#">5989-4775EN</a>
N5701A-001	IPv6 Basic CTS License	N5701A	
N5701A-002	IPv6 Extension CTS License	N5701A	
N5701A-003	IPv6 Security CTS License	N5701A	
PS-S12-102	1 year software and support contract extended to 2 years	N5701A	
PS-S12-103	1 year software and support contract extended to 3 years	N5701A	
PS-S12-601	Annual Renewal for N5701A Software Support Contract	N5701A	

## Conformance Test Suites (continued)

Order #	Description	Requires	Literature #
<b>N5555A-N5702A</b>	<b>OSPFv3 Conformance Test Suite Software</b>	E7880B or E7881B	<a href="#">5989-4775EN</a>
N5702A-001	OSPFv3 Basic CTS License	N5702A	
PS-S12-102	1 year software and support contract extended to 2 years	N5702A	
PS-S12-103	1 year software and support contract extended to 3 years	N5702A	
PS-S12-601	Annual Renewal for N5702A Software Support Contract	N5702A	
<b>N5555A-N5704A</b>	<b>BGP4 Conformance Test Suite Software</b>	E7880B or E7881B	<a href="#">5989-4775EN</a>
N5704A-001	BGP4 Basic CTS License	N5704A	
N5704A-002	BGP4 Extension CTS License	N5704A	
PS-S12-102	1 year software and support contract extended to 2 years	N5704A	
PS-S12-103	1 year software and support contract extended to 3 years	N5704A	
PS-S12-601	Annual Renewal for N5704A Software Support Contract	N5704A	
<b>N5555A-N5705A</b>	<b>IS-IS Conformance Test Suite Software</b>	E7880B or E7881B	<a href="#">5989-4775EN</a>
N5705A-001	IS-IS Basic CTS License	N5705A	
N5705A-002	IS-IS Extension CTS License	N5705A	
PS-S12-102	1 year software and support contract extended to 2 years	N5705A	
PS-S12-103	1 year software and support contract extended to 3 years	N5705A	
PS-S12-601	Annual Renewal for N5705A Software Support Contract	N5705A	
<b>N5555A-N5706A</b>	<b>OSPFv2 Conformance Test Suite Software</b>	E7880B or E7881B	<a href="#">5989-4775EN</a>
N5706A-001	OSPFv2 Basic CTS License	N5706A	
N5706A-002	OSPFv2 Extension CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5706A Software Support Contract	N5706A	
<b>N5555A-N5707A</b>	<b>PIM-SM Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5140EN</a>
N5707A-001	PIM-SM Basic CTS License	N5706A	
N5707A-002	Extension License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5707A Software Support Contract	N5706A	
<b>N5555A-N5708A</b>	<b>MLDv2 Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5140EN</a>
N5708A-001	MLDv2 Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5708A Software Support Contract	N5706A	
<b>N5555A-N5709A</b>	<b>IGMPv3 Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5140EN</a>
N5709A-001	IGMPv3 Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5709A Software Support Contract	N5706A	

## Conformance Test Suites (continued)

Order #	Description	Requires	Literature #
<b>N5555A-N5710A</b>	<b>MPLS RSVP-TE Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5139EN</a>
N5710A-001	MPLS RSVP-TE Basic CTS License	N5706A	
N5710A-002	MPLS RSVP-TE Extension CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5710A Software Support Contract	N5706A	
<b>N5555A-N5711A</b>	<b>MPLS LDP Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5139EN</a>
N5711A-001	MPLS LDP Basic CTS License	N5706A	
N5711A-002	MPLS LDP Extension CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5711A Software Support Contract	N5706A	
<b>N5555A-N5712A</b>	<b>STP Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5133EN</a>
N5712A-001	STP Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5712A Software Support Contract	N5706A	
<b>N5555A-N5713A</b>	<b>RSTP Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5133EN</a>
N5713A-001	RSTP Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5713A Software Support Contract	N5706A	

## Conformance Test Suites (continued)

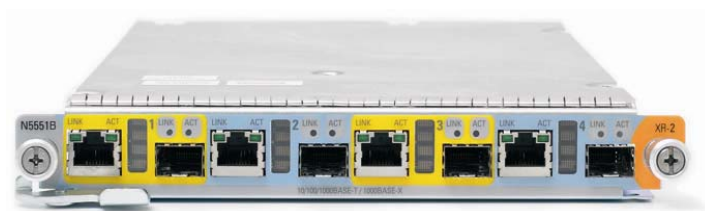
Order #	Description	Requires	Literature #
<b>N5555A-N5714A</b>	<b>MSTP Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5133EN</a>
N5714A-001	MSTP Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5714A Software Support Contract	N5706A	
<b>N5555A-N5715A</b>	<b>LACP Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5133EN</a>
N5715A-001	LACP Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5715A Software Support Contract	N5706A	
<b>N5555A-N5716A</b>	<b>802.1x Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5133EN</a>
N5716A-001	802.1x Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5716A Software Support Contract	N5706A	
<b>N5555A-N5717A</b>	<b>VLAN Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5133EN</a>
N5717A-001	VLAN Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5717A Software Support Contract	N5706A	
<b>N5555A-N5718A</b>	<b>CFM Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-5133EN</a>
N5718A-001	CFM Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5718A Software Support Contract	N5706A	
<b>N5555A-N5719A</b>	<b>BFD Conformance Test Software</b>	E7880B or E7881B	<a href="#">5989-4775EN</a>
N5719A-001	BFD Basic CTS License	N5706A	
PS-S12-102	1 year software and support contract extended to 2 years	N5706A	
PS-S12-103	1 year software and support contract extended to 3 years	N5706A	
PS-S12-601	Annual Renewal for N5719A Software Support Contract	N5706A	
<b>N5555A-N5725A</b>	<b>Graceful Restart Conformance Test Suite Software</b>	E7880B or E7881B	<a href="#">5989-4775EN</a>
N5725A-001	GR Basic CTS License	N5725A	
PS-S12-102	1 year software and support contract extended to 2 years	N5725A	
PS-S12-103	1 year software and support contract extended to 3 years	N5725A	

Note:

1. Technical and software support for Productivity Application (N5570A and N5571A) is included with support options for E7881B.
2. Please check the datasheets for the minimal test port number and port type required by each conformance test suite you choose. To enable full functionality of test suites, the hardware requirements have to be met.
3. Customers with R5.x CTS licenses can upgrade to the R6.x equivalent by purchasing the basic license.

## ***Step 7: Choose Test Interface Cards for your N2X system***

- **N2X XP/XP-2 Test Cards**  
Packet Test Cards for comprehensive traffic generation and analysis testing. Please note: XP and XP-2 Test Cards do NOT support any protocol emulation, productivity advantage or conformance test software solutions. Order the E7881B if required.
- **N2X XR/XR-2 Test Cards**  
Packets and Protocols Test Cards for integrated traffic generation and realistic protocol emulation for dynamic network testing.
- **N2X XS/XS-2 Test Cards**  
High-performance Packets and Protocols Test Cards optimized to deliver the industry's highest protocol emulation scalability for network stress testing.
- **N2X XM Test Cards**  
SONET/SDH Test Cards for simulation and analysis of multi-channel loading, errors, alarms and switching performance.



**N2X 4-port 10/100/1000 Electrical/Optical  
XR-2 Test Card (SFP/RJ45)**

## XP Cards - Packet Test Cards

Order #	Description	Requires	Literature #
<b>XP Cards - Packet Test Cards</b>			
<b>E5215A</b>	<b>16-port 10/100 Ethernet XP Test Card</b>		<a href="#">5989-1554EN</a>
<b>N5553B</b>	<b>N2X 4-port 10/100/1000 Electrical/Optical XP-2 Test Card (SFP/RJ45)</b>		<a href="#">5989-4586EN</a>
N5553B-001	1000Base-SX SFP		
N5553B-002	1000Base-LX SFP		
N5553B-003	1000Base-ZX SFP		

## XR Cards - Packet and Protocol Test Cards

Order #	Description	Requires	Literature #
<b>XR Cards - Packet and Protocol Test Cards</b>			
<b>E7906A</b>	<b>16-port 10/100 Ethernet XR Test Card</b>		<a href="#">5988-8482EN</a>
<b>E7907A</b>	<b>2-port OC-3c/OC-12c ATM/POS/FR routing test card</b>		<a href="#">5988-5019EN</a>
E7907A-001	Single Mode Intermediate Reach Optics		
E7907A-002	Multimode Optics		
<b>E7909A</b>	<b>2-port OC-48c POS/FR XR Test Card</b>		<a href="#">5988-5017EN</a>
E7909A-001	Single Mode Intermediate Reach Optics		
<b>N5550B</b>	<b>4-port 10/100 Ethernet XR-2 Test Card</b>		<a href="#">5989-4586EN</a>
<b>XR-2 Cards - Packet and Protocol Test Cards</b>			
<b>N5551B</b>	<b>4-port 10/100/1000 Electrical/Optical XR-2 Test Card (SFP/RJ45)</b>		<a href="#">5989-4586EN</a>
N5551B-001	1000Base-SX SFP		
N5551B-002	1000Base-LX SFP		
N5551B-003	1000Base-ZX SFP		
<b>N5552B</b>	<b>2-port 10/100/1000 Electrical/Optical XR-2 Test Card (SFP/RJ45)</b>		<a href="#">5989-4586EN</a>
N5552B-001	1000Base-SX SFP		
N5552B-002	1000Base-LX SFP		
N5552B-003	1000Base-ZX SFP		
<b>N5602A</b>	<b>1-port 10G POS &amp; Ethernet LAN/WAN XFP XR-2 Test Card</b>		<a href="#">5989-5738EN</a>
N5602A-001	1310nm XFP		
N5602A-002	1550nm XFP		
<b>N5603A</b>	<b>1-port 10G Ethernet LAN/WAN XFP XR-2 Test Card</b>		<a href="#">5989-5738EN</a>
N5603A-001	1310nm XFP		
N5603A-002	1550nm XFP		
<b>N5604A</b>	<b>4-port 10/100/1000 Ethernet and EPON Monitor Card</b>		<a href="#">5989-4141EN</a>
N5604A-001	1000Base-SX SFP		
N5604A-002	1000Base-LX SFP		
N5604A-003	1000Base-ZX SFP		
N5604A-004	1000Base-BX10-U SFP		
N5604A-005	1000Base-PX20-D SFP		

## XR Cards - Packet and Protocol Test Cards (continued)

Order #	Description	Requires	Literature #
<b>XR Cards - Packet and Protocol Test Cards</b>			
<b>N5605A</b>	<b>10-port SFP Ethernet XR-2 Test Card</b>		<a href="#">5989-9212EN</a>
N5605A-001	1000Base-SX SFP		
N5605A-002	1000Base-LX SFP		
N5605A-003	1000Base-ZX SFP		
N5605A-004	10/100/1000Base T SFP		
<b>N5606A</b>	<b>10-port 10/100/1000BASE-T Ethernet XR-2 Test Card</b>		<a href="#">5989-9212EN</a>

## XS Cards – SONET/SDH Test Cards

Order #	Description	Requires	Literature #
<b>XS Cards - Packet and Protocol Test Cards</b>			
<b>E7320B</b>	<b>1-port 40G XS Test Card (includes chassis)</b>		<a href="#">5989-1530EN</a>
<b>E7907B</b>	<b>2-port OC-3c/OC-12c ATM/POS/FR XS Test Card</b>		<a href="#">5988-5019EN</a>
E7907B-001	Single Mode Intermediate Reach Optics		
E7907B-002	Multimode Optics		
<b>E7909B</b>	<b>2-port OC-48c POS/FR XS Test Card</b>		<a href="#">5988-5019EN</a>
E7909B-001	Single Mode Intermediate Reach Optics		
<b>XS-2 Cards - Packet and Protocol Test Cards</b>			
<b>N5630B</b>	<b>2-port 10/100/1000 Electrical/Optical XS-2 Test Card (SFP/RJ45)</b>		<a href="#">5989-4586EN</a>
N5630B-001	1000Base-SX SFP		
N5630B-002	1000Base-LX SFP		
N5630B-003	1000Base-ZX SFP		
<b>N5632A</b>	<b>1-port 10G POS &amp; Ethernet LAN/WAN XFP XS-2 Test Card</b>		<a href="#">5989-5738EN</a>
N5632A-001	1310nm XFP		
N5632A-002	1550nm XFP		

## XM Cards – SONET/SDH Test Cards

Order #	Description	Requires	Literature #
<b>XM Cards – SONET/SDH Test Cards</b>			
<b>J7241A</b>	<b>N2X 1-port OC-192/STM-64 Multi-channel XM Test Card (1550nm)</b>		<a href="#">5988-6665EN</a>
J7241A-609	FC/PC optical connectors (exchangeable)		
J7241A-610	SC optical connectors (exchangeable)		
J7241A-611	ST optical connectors (exchangeable)		
<b>J7242A</b>	<b>N2X 1-port OC-192/STM-64 Multi-channel XM Test Card (1310nm)</b>		<a href="#">5988-6665EN</a>
J7242A-609	FC/PC optical connectors (exchangeable)		
J7242A-610	SC optical connectors (exchangeable)		
J7242A-611	ST optical connectors (exchangeable)		
<b>J7244A</b>	<b>N2X 2-port OC-48/STM-16 Multi-rate/channel XM Test Card (1550nm)</b>		<a href="#">5988-6785EN</a>
J7244A-001	OC-48/STM-16 Single-port module (1550nm)		
J7244A-002	OC-48/STM-16 Dual-port module (1550nm)		
	Adds multi-channel VT/TU capability to XM OC48/STM16 multi-rate module.		
J7244A-010	Order quantity to match module port count. Recommend high end controller for VT/TU applications.		
J7244A-609	Exchangeable optical FC/PC connector		
J7244A-610	Exchangeable optical SC connector		
J7244A-611	Exchangeable optical ST connector		
<b>J7245A</b>	<b>N2X 2-port OC-48/STM-16 Multi-rate/channel XM Test Card (1310nm)</b>		<a href="#">5988-6785EN</a>
J7245A-001	OC-48/STM-16 Single-port module (1310nm)		
J7245A-002	OC-48/STM-16 Dual-port module (1310nm)		
	Adds multi-channel VT/TU capability to XM OC48/STM16 multi-rate module.		
J7245A-010	Order quantity to match module port count. Recommend high end controller for VT/TU applications.		
J7245A-609	Exchangeable optical FC/PC connector		
J7245A-610	Exchangeable optical SC connector		
J7245A-611	Exchangeable optical ST connector		

### Note:

1. New interface cards are shipped with 1-year-Return-to-Agilent warranty. **3-year-Return-to-Agilent warranty** is available by choosing option **R-51B-001-3C**.
2. The XP, XR, XS cards require a **2-year calibration cycle**. The XM cards do NOT require calibration.
3. To enable traffic generation and analysis capability, XP, XR, XS cards need E7880B or E7881B base software license. To enable protocol emulation capability, XR and XS cards need E7881B base software license. The E7880B is a subset of the E7881B.
4. J7251A Multi-Services Transport Software base software license is required to enable the XM cards.



## Step 8: Choose Accessories for your N2X system

Order #	Description	Requires	Literature #
E7900-00035	Rackmount kit for N2X 4-slot chassis.		NA
E7900-64207	N2X/RT900 4 slot chassis to chassis cable		NA
E7900-64208	N2X/RT900 rack to rack cable		NA
E7900-64209	N2X/RT900 module to chassis cable		NA
E7912-80006	Soft carry bag for 2-slot N2X chassis		NA
E7900-80006	Soft carry bag for 4-slot N2X chassis		NA
E7912-80012	Hard transit case for 2-slot N2X chassis		NA
E7900-80012	Hard transit case for 4-slot N2X chassis		NA
E7901-64210	RJ-45 LAN CABLE. Length 2m		NA
J7250A	Upgrades N2X 2.5Gb/s multi-rate module, adding multi-channel VT/TU capability	J7244A or J7245A	NA
J7250A-010			
J7283A	FC/PC connector (exchangeable)		NA
J7284A	SC connector (exchangeable)		NA
J7285A	ST connector (exchangeable)		NA

## Final Check

Please double check the configuration to make sure all the hardware and software you need have been selected with correct quantity and compatibility.

- N2X Chassis
- System Controller
- Base Software License
- Test Cards
- Protocol Software Licenses
- Productivity Advantage Software licenses
- Accessories

## Appendix:

### Ordering Sample

Here is an ordering sample showing how to select N2X components and corresponding options.

Product #	Description	Quantity
<b>N5555A</b>	<b>N2X Packets &amp; Protocols Test Solution</b>	<b>1</b>
<b>N5555A-N5541A</b>	<b>N2X 4-slot Chassis</b>	<b>1</b>
R-51B-001-3C	1 year Return-to-Agilent warranty extended to 3 years	1
<b>N5555A-N5544C</b>	<b>N2X Rackmount Controller</b>	<b>1</b>
N5544C-001	Supply and Install 5 Microsoft Server user licenses	1
R-51B-001-3C	1 year Return-to-Agilent warranty extended to 3 years	1
<b>N5555A-E7881B</b>	<b>Packet &amp; Protocols Application Software.</b>	<b>1 (match the number of controller)</b>
E7881B-AJL	Include user documentation	1
PS-S12-103	1 year software and support contract extended to 3 years	1
<b>N5555A-E7882A</b>	<b>IPv4 Routing Emulation Software License</b>	<b>1</b>
<b>N5555A-E7883A</b>	<b>MPLS Signaling Emulation Software License</b>	<b>1</b>
<b>N5555A-E7884A</b>	<b>L2 MPLS VPN Application Software License</b>	<b>1</b>
<b>N5555A-E7885A</b>	<b>IPv6 Routing Emulation Software License</b>	<b>1</b>
<b>N5555A-E7886A</b>	<b>Multicast Routing Emulation Software License</b>	<b>1</b>
<b>N5555A-E7887A</b>	<b>DHCP Protocol Emulation Software License</b>	<b>1</b>
<b>N5555A-E7888A</b>	<b>Access Protocol Emulation Software License</b>	<b>1</b>
<b>N5555A-E7889A</b>	<b>Optical Signaling Emulation Software License</b>	<b>1</b>
<b>N5555A-N5570A</b>	<b>IPTV QoS Productivity Application</b>	<b>1</b>
<b>N5555A-N5571A</b>	<b>High Availability Productivity Application Software</b>	<b>1</b>
<b>N5555A-N5701A</b>	<b>IPv6 Conformance Test Suite Software</b>	<b>1</b>
N5701A-001	IPv6 Basic CTS License	1
N5701A-002	IPv6 Extension CTS License	1
N5701A-003	IPv6 Security CTS License	1
PS-S12-103	1 year software and support contract extended to 3 years	1
<b>N5555A-N5704A</b>	<b>BGP4 Conformance Test Suite Software</b>	<b>1</b>
N5704A-001	BGP4 Basic CTS License	1
N5704A-002	BGP4 Extension CTS License	1
PS-S12-103	1 year software and support contract extended to 3 years	1
<b>N5555A-N5725A</b>	<b>Graceful Restart Conformance Test Suite Software</b>	<b>1</b>
N5725A-001	GR Basic CTS License	1
PS-S12-103	1 year software and support contract extended to 3 years	1
<b>N5551B</b>	<b>4-port 10/100/1000 Electrical/Optical XR-2 Test Card</b>	<b>2</b>
R-51B-001-3C	1 year Return-to-Agilent warranty extended to 3 years	2
N5551B-001	1000Base-SX SFP	8 (match number of ports)
N5551B-002	1000Base-LX SFP	8 (match number of ports)
<b>E7909A</b>	<b>2-port OC-48c POS/FR XR Test Card</b>	<b>2</b>
R-51B-001-3C	1 year Return-to-Agilent warranty extended to 3 years	2

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## Agilent's N2X system

Agilent's N2X multi-service tester combines leading-edge services with carrier grade infrastructure testing and emulation. The N2X solution set allows network equipment manufacturers and service providers to more comprehensively test new services end-to-end, resulting in higher quality of service and lower network operating costs.

## Software and Support Agreement

To protect your investment in the Agilent N2X, every new system includes an initial 12-month comprehensive system-based warranty and Software and Support Agreement (SSA). Renewing Agilent support services ensures uninterrupted technical support and software upgrades, giving you confidence in N2X throughout the life of your system.

The N2X technical support portion of your SSA includes assistance with product operation and measurements and verification that the N2X equipment is in correct working order.

## Warranty and Servicing

### Hardware Warranty

All N2X hardware is warranted against defects in materials and workmanship for a period of 1 year from the date of shipment.

### Software Warranty

All N2X software is warranted for a period of 90 days. The applications are warranted to execute and install properly from the media provided.

This warranty only covers physical defects in the media, whereby the media is replaced at no charge during the warranty period.

### Servicing

N2X must be serviced by an approved Agilent Technologies service centre, please contact us for more information.

## Ordering Information

To order the N2X test system, consult your local Agilent field engineer.

[www.agilent.com/find/N2X](http://www.agilent.com/find/N2X)

### United States:

Agilent Technologies  
Test and Measurement Call Center  
P.O. Box 4026  
Englewood, CO 80155-4026  
1-800-452-4844

### Canada:

Agilent Technologies Canada Inc.  
5150 Spectrum Way  
Mississauga, Ontario  
L4W 5G1  
1-877-894-4414

### Europe:

Agilent Technologies  
European Marketing Organisation  
P.O. Box 999  
1180 AZ Amstelveen  
The Netherlands  
(31 20) 547-2323

### United Kingdom

07004 666666

### Japan:

Agilent Technologies Japan Ltd.  
Measurement Assistance Center  
9-1, Takakura-Cho, Hachioji-Shi,  
Tokyo 192-8510, Japan  
Tel: (81) 426-56-7832  
Fax: (81) 426-56-7840

### Latin America:

Agilent Technologies  
Latin American Region Headquarters  
5200 Blue Lagoon Drive, Suite #950  
Miami, Florida 33126  
U.S.A.  
Tel: (305) 269-7500  
Fax: (305) 267-4286

### Asia Pacific:

Agilent Technologies  
19/F, Cityplaza One, 1111 King's Road,  
Taikoo Shing, Hong Kong, SAR  
Tel: (852) 3197-7777  
Fax: (852) 2506-9233

### Australia/New Zealand:

Agilent Technologies Australia Pty Ltd  
347 Burwood Highway  
Forest Hill, Victoria 3131  
Tel: 1-800-629-485 (Australia)  
Fax: (61-3) 9272-0749  
Tel: 0-800-738-378 (New Zealand)  
Fax: (64-4) 802-6881

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