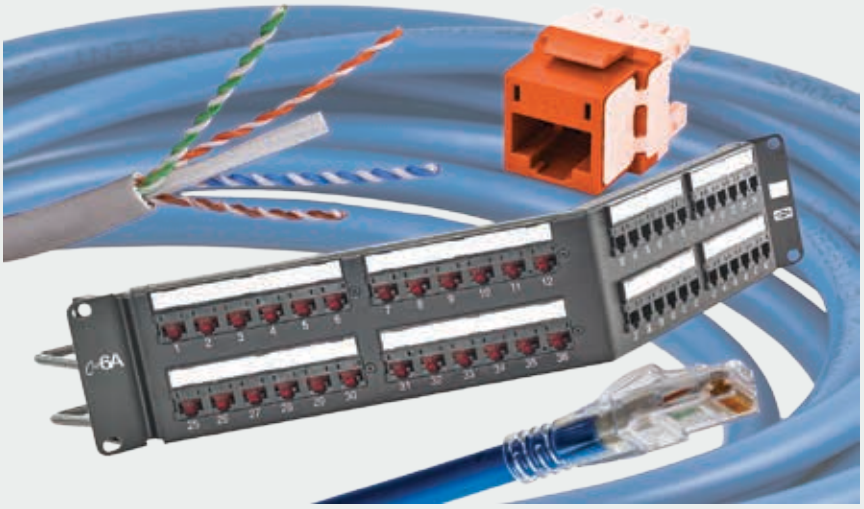
HUBBELL NEXTSPEED

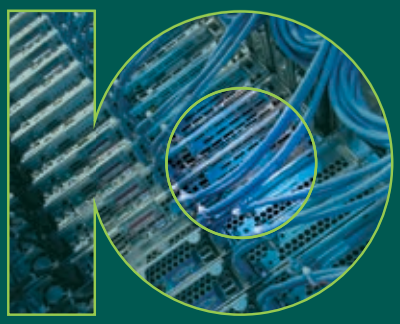
Ascent Category 6A Enhanced Performance System

Cat 6A

- Third Party Verified Category 6A Component Exceeds TIA and ISO Limits
- Exclusive 1-Punch Termination Reduces Termination Time by 75%
- Designed for Critical, Bandwidth Intensive 10GBASE-T Applications from 2–100m PL
- Bulk Packaging Reduces Excess Waste on the Job









Intertek

NEXTSPEED® Ascent Category 6A solution is a tuned system of structured cabling components designed and balanced to work together to support bandwidth beyond 625MHz. NEXTSPEED Ascent provides the highest level of reliability with a zero bit error rate of 10^{-13}.

Features

- 4.5db min NEXT margin over TIA 568-C.2 component requirements at 500MHz
- 1.5dB min NEXT margin over IEC 60603 component at 500MHz
- Supports permanent links: 2 – 100 meters
- Enhanced common mode design eliminates residual and reflected NEXT/AXT
- Designed and tested for 850mA of continuous current per conductor (1.7A per pair)

Applications

- Bandwidth intensive 10GBASE-T (802.3an)
- Data center
- PoE and PoE+ (IEEE 802.3)
- High performance cable applications
- Government

Specifications

- Supports IEEE 10GBASE-T (802.3an)
- Bit error rate tested ($\leq 1*10^{-13}$)
- ANSI/TIA-568-C.2 Category 6A component, link and channel compliant
- Exceeds ISO 11801 Class EA link/channel and IEC 60603 component requirements
- Supports IEEE PoE+ (802.3at) and proposed 4-pair PoE
- Efficient PoE delivery
- Third party tested, Intertek Testing Services (ETL)
- Backward compatible Category 6, 5e

CISCO PARTNER Technology Developer

Hubbell is a Solution Developer Partner within the Cisco Developer Network Program

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The Short Link Phenomenon

A common question surrounding new cabling system technology is how short a connection can run. Many systems in the industry come with limitations on the shortest possible link configuration. NEXTSPEED® ASCENT 10G can support connections between 1 and 100 meters apart, based on practical real world channel configurations.



The "Short Link Phenomenon," in the traditional sense, is not an issue due to superior design and enhanced NEXT and Return Loss performance. The restriction on length becomes dominated by Alien Crosstalk. The main concern is where the channel/link configuration is different from the channel model assumption used in developing the standard limits.

Major Trends Driving 10G Demand

- Exponential growth in data volume
- Internet traffic growth at over 30% CAGR
- More powerful data centers in support of online traffic
- Tremendous data growth driven by mobile devices
- Advances in storage area networks
- Consolidation and clustering
- Server virtualization
- Increasing application speeds
- Digital media content

Channel Margin Guarantees*

Parameter	Margin vs. TIA-568-C.2
Insertion Loss	3%
NEXT	4db
PSNEXT	5db
ACR	4db
PSACR	5db
Return Loss	4db
ACRF	6db
PSACRF	7db
PSANEXT	4db
PSAACRF	4db

Standards

- ETL verified to TIA-568-C.2 Category 6A component compliant
- IEC 60603-7 Class EA component compliant (Category 6A)
- IEEE 802.3an
- IEEE 802.3at
- UL Listed 1863

Key Industry Challenges

PoE



Efficiently powering IP devices through PoE and PoE+ protocols designed to handle continuous power over time

Short Link



Supporting short length channels and links in data centers

Performance



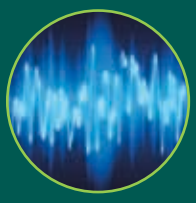
Bandwidth beyond 10G, verified and third party tested for transmission and performance beyond TIA-568C requirements

Interoperability



No space constraints, backward compatible, component compliant

AXT



Eliminating Alien Cross Talk (AXT), EMI and security issues

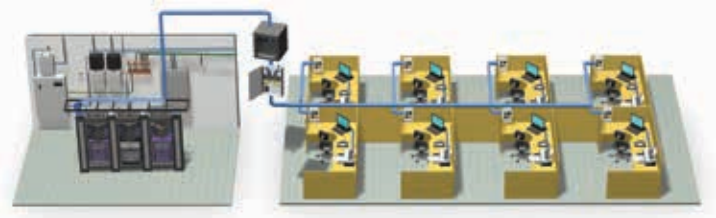
**Channel margin guarantees are based on third party testing, field testing and in-house laboratory testing. Field test results of each channel may vary, depending upon installation, tester accuracy and overall system design. All channel margin guarantees are based on 4-connector channel configurations.*

NEXTSPEED® Ascent Category 6A Performance Data

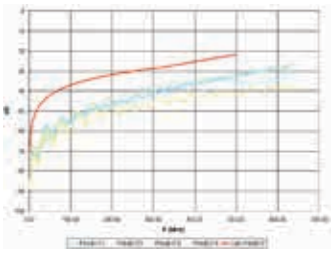
The NEXTSPEED® Ascent Category 6A UTP cabling infrastructure system was tested in configurations from 2 to 100 meters links and 3 and 4 connector channels.

Worst-Case Channel Configuration for AXT

4-Connector Channel



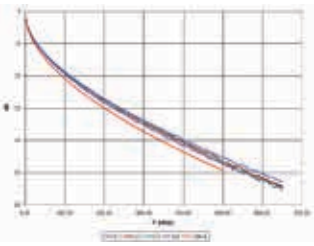
Power-Sum Near-End Crosstalk (PSNEXT)



PSNEXT: A computation of the unwanted signal coupling from multiple transmitters at the near end into a pair measured at the near end.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	87.2	88.1	70.3
100	53.5	57.3	37.0
250	42.3	45.0	30.2
500	31.0	36.0	21.8

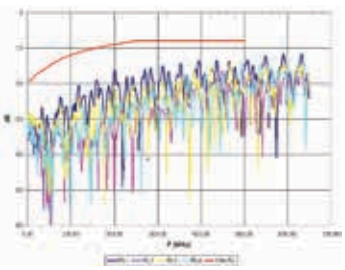
Attenuation



Attenuation: The decrease in magnitude of transmission signal strength between points, expressed in dB as the ratio of output to input signal level.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	2.1	2.1	2.2
100	19.5	19.1	21.0
250	31.8	31.2	33.8
500	47.4	46.6	49.3

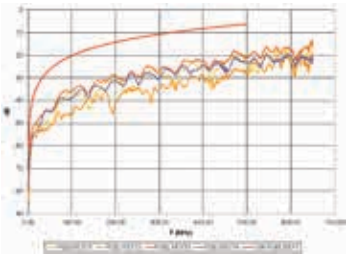
Return Loss



Return Loss: Ratio of the signal reflected back at the transmitter relative to the original signal sent. In a full duplex application, like 1000BASE-T, significant Return Loss can cause network errors.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	29.1	30.4	19.0
100	29.6	34.9	12.0
250	21.6	26.4	8.0
500	17.1	20.2	8.0

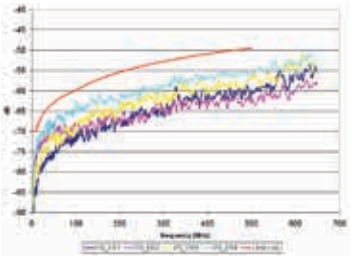
Power-Sum Equal Level Far-End Crosstalk (PSELFEXT)



PSELFEXT: A computation of the unwanted signal coupling from multiple transmissions at the near-end into a pair measured at the far-end and normalized to the received signal level.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	73.3	77.1	60.3
100	35.6	39.3	20.2
250	29.0	32.5	12.3
500	20.9	23.9	6.3

Power-Sum Alien Near-End Crosstalk (PSANEXT)



PSANEXT: 6-around-1 Power-Sum Alien NEXT. Ratio of unwanted signal coupling from all neighboring ports/ channels into a pair measured at the near end.

FREQ	WORST CASE	AVERAGE	TIA SPEC
1	89.0	91.2	70
100	67.1	69.5	61.2
250	63.2	65.6	55.6
500	56.9	60.2	51.0

Comprehensive Warranty Coverage and Support

Hubbell 10G Systems provide comprehensive coverage for applications and performance headroom, along with training and support services:

- Independent third party (ETL) verified performance
- System must be registered and installed in accordance with Hubbell's Mission Critical® warranty program
- PoE+ application assurance
- Backward compatibility
- Trained, qualified network of design-install partners
- BIM models (available on Autodesk® Seek; visit seek.autodesk.com)

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Cat 6A

Jacks, NEXTSPEED® Ascent Category 6A



State-of-the-art transmission performance, features the highest level of reliability, and is the industry's fastest terminating jack.

Color	Catalog No.	Color	Catalog No.
Black	**HJ6ABK**	Office White	**HJ6AOW**
Blue	**HJ6AB**	Orange	**HJ6AOR**
Electric Ivory	**HJ6AEI**	Purple	**HJ6AP25***
Gold	**HJ6AGL25***	Red	**HJ6AR**
Gray	**HJ6AGY**	White	**HJ6AW**
Green	**HJ6AGN**	Yellow	**HJ6AY**

*Note: Add **25** to Catalog Number for 25-pack. Gold and Purple available in 25-pack only.*

Patch Cords, NEXTSPEED® Ascent Category 6A



Patch cords are constructed with specially designed patch cable and an assembly procedure delivering the industry's highest performing patch cord. Incorporated into the design, is a conductor sled to optimize performance, control NEXT, and separate pairs providing a consistent contact-to-conductor alignment during termination.

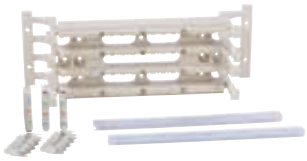
Description	Catalog No.
Cat 6A patch cord	**HC6Axxyy**

xx = Color: ***BK*** *(Black)*, ***B*** *(Blue)*, ***GN*** *(Green)*, ***GY*** *(Gray)*, ***OR*** *(Orange)*, ***PK*** *(Pink)*, ***P*** *(Purple)*, ***R*** *(Red)*, ***W*** *(White)* and ***Y*** *(Yellow)*.

yy = *Length:* ***01*** *= 1',* ***03*** *= 3',* ***05*** *= 5',* ***07*** *= 7',* ***10*** *= 10',* ***15*** *= 15' and* ***20*** *= 20'.*

6-110 Block Kit

The perfect high-performance consolidation point, the NEXTSPEED® 6-110 punch down blocks provide an ideal 10GbE solution.



Description	Catalog No.
64-pair kit with legs and 16 connecting blocks	**6110FTK64WL**
64-pair kit w/o legs and 16 connecting blocks	**6110FTK64NL**
192-pair kit with legs and 64 connecting blocks	**6110FTK192WL**

Note: 6-110, 4-pair connecting clips.

Patch Panels, NEXTSPEED® Ascent Category 6A



Patch panels are supplied with labeling for T568B wiring. The 6-port adapter's fully enclosed shell protects the PCB from contaminants and errant terminations, and also allows icons to be installed on each jack port for identification.

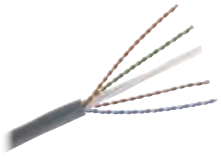
Format	Width (mm)	Color	Catalog No.
Standard	19" (483)	Black	**HP6App**
Standard	19" (483)	White	**HP6AppW**
Angled	19" (483)	Black	**HP6AppA**

pp = *Port Size:* ***24*** *(24 ports);* ***48*** *(48 ports).*

UTP Cable, NEXTSPEED® Ascent Category 6A, 4-pair

Provides usable bandwidth beyond 625 MHz to run all of your bandwidth-intensive applications. Whether it's server-to-server in the data center or delivering IP convergence to the desktop, NEXTSPEED® Ascent Category 6A cable is your perfect solution.

Color	Riser Spool Catalog No.	Plenum Spool Catalog No.
Blue	**C6ASRB**	**C6ASPB**
Gray	**C6ASRGY**	**C6ASPGY**
White	**C6ASRW**	**C6ASPW**
Yellow	**C6ASRY**	**C6ASPY**



Note: All category rated cable is packaged in 1000 foot quantities.

1-Punch Termination Tools

NEXTSPEED® Ascent Category 6A jacks and panels can be terminated with Hubbell's exclusive 1-Punch tool. 1-Punch not only dramatically speeds the termination process, it consistently delivers more reliable and higher quality termination than traditional 110 termination.



For XCELERATOR Jacks	Catalog No.
1-punch tool with XJ head, blades, HXTA termination aid	**TX4P6A**
1-punch XJ replacement head	**TX4P6AH**
1-punch XJ replacement blades	**TX4P6ABL**
Snap-X termination puck (25-pack)	**HXTP25**

For NEXTSPEED® Patch Panels	Catalog No.
1-punch XJ tool with panel head, blades and HXTA termination aid	**TX4P**
1-punch XJ replacement head	**TX4PH**
1-punch XJ replacement blades	**TX4PHBL**

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