



HUBBELL
NextSpeed

Ascent 10GbE Enhanced Performance System

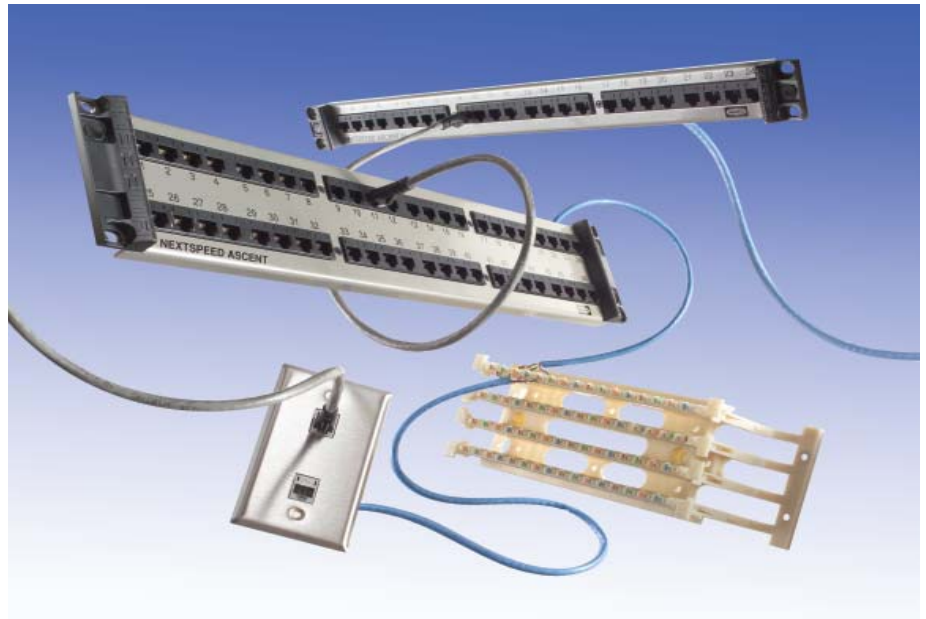
10GbE Application Assurance.

3rd Party Tested Category 6A Channel Compliant.

Traditional Jack and Panel Termination.

Component Compliant ANEXT Performance.

PoE and PoE+ Ready.



FEATURES

- Maximum Bandwidth Beyond 625 MHz.
- Hubbell Premise Wiring's Category 6a **NEXTSPEED**® Ascent 10GbE systems allows the use of a single network to support voice, data and video.
- 1-Punch™ compatible.
- All components meet ANEXT requirements as specified in TIA-568-B.2-10*
- Backward compatible to Category 3, 5, 5e, and 6.

The **NEXTSPEED**® Ascent 10GbE UTP cabling infrastructure system is designed specifically for 10GbE applications. **NEXTSPEED**® Ascent 10GbE provides a solid foundation for critical data intensive applications demanding performance for full 100 meter channel configurations.

Once again, Hubbell combines state of the art transmission performance circuit design with technician friendly installation and termination techniques, in a durable product construction. **NEXTSPEED**® Ascent 10GbE systems install easily and consistently while providing superior performance for current and future applications.

Additionally, **NEXTSPEED**® Ascent 10GbE has been extensively tested to support existing PoE applications, and exceeds proposed PoE+ power levels.

STANDARDS/VERIFICATIONS

- ANSI/TIA/EIA-568-B.2-10*.
- IEEE 802.3af (PoE) and proposed IEEE 802.3at (PoE+).
- Exceeds IEEE 802.3an 10GBASE-T link segment requirements.
- Performance tested beyond 625MHz.
- ISO/IEC 11801 (Second edition) Class E compliant.

* Proposed draft.

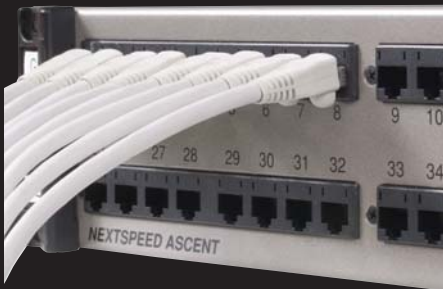
APPLICATIONS

- ▲ Data centers 10GbE between devices:
 - Server to switch.
 - Server to server.
 - Server to storage.
- ▲ High-performance cable applications.
 - Active zone cabling.
 - Distributed cabling.
- ▲ PoE Applications
 - WAP's.
 - Security Appliances.
 - VoIP.
- ▲ Bandwidth intensive processing:
 - Video on demand (VOD).
 - Real-time security surveillance.
 - High-resolution 3D modeling.
 - On-line document publishing.
 - Broadband video.

The Significance of Alien Crosstalk

The IEEE conclusively determined that 10GbE over UTP is achievable. The IEEE, TIA and other standards groups determined the most important electrical parameter limiting the performance of copper cabling systems is Alien Crosstalk. Alien Crosstalk is noise from one channel interfering with adjacent channels. Alien Crosstalk occurs throughout the channel: cable, patch cords, neighboring jacks and between patch panel ports.

Prior to 10GbE, noise from outside sources was insignificant relative to signal strength and crosstalk. Digital signal processing (DSP) techniques for suppressing crosstalk were designed into the electronics. However, with encoding



techniques relying on reduced voltage differentials, noise from sources outside the cable became more significant. Unlike crosstalk, Alien Crosstalk appears random in nature making filtering of the signal difficult. The solution, eliminate Alien Crosstalk. When considering 10GbE UTP networks, cable, jacks, patch panels, cords, and blocks designed to defeat ANEXT are required throughout your enterprise to face coming challenges.

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** 10GbE can support connections between 1 meter 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.



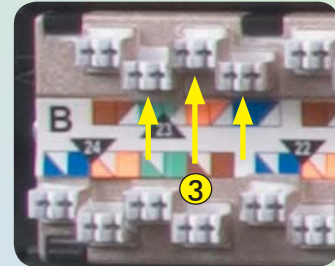
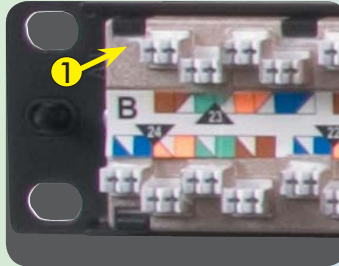
ANEXT Elimination Techniques

Hubbell Premise Wiring's innovative design of system components reduces ANEXT, the key parameter IEEE has defined to deliver 10GbE performance.

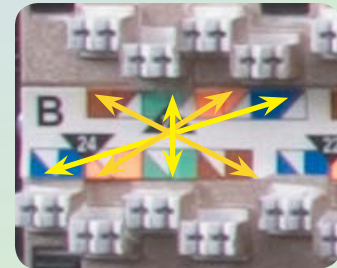
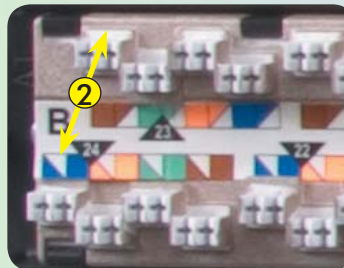
Patch Panels

ANEXT Alien Crosstalk - Coupled signal on a cable/port arising from signal or signals from different neighboring cables/ports.

1. **Shield:** rear of adapter coated conductively to eliminate ANEXT.
3. **Stagger:** tower formation offset pair-to-pair and port-to-port.

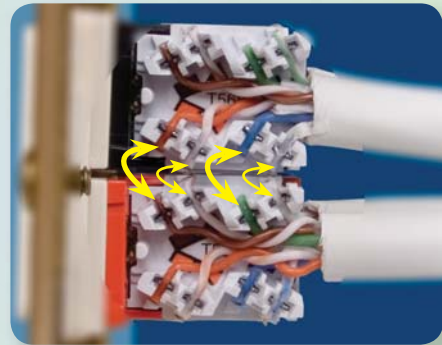


2. **Separate:** distance between upper and lower IDCs maximized to reduce ANEXT, also helps with termination.
4. **Swap:** color code order reversed to minimize ANEXT.



UTP Jacks

- ◆ Angled IDC towers isolate pair-to-pair
- ◆ IDC pairs eliminate ANEXT when terminated side-by-side.



Cable

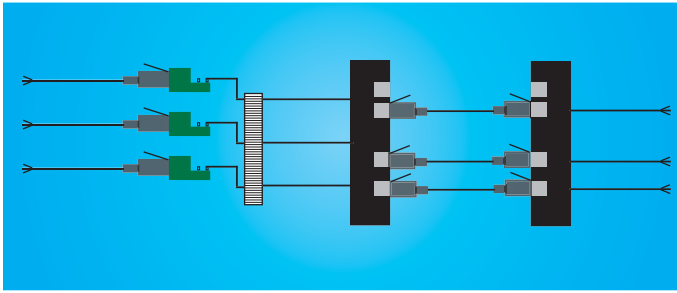
NEXTSPEED® Ascent 10GbE cable features innovative ANEXT reduction techniques in internal jacket construction and individual pair separator design.



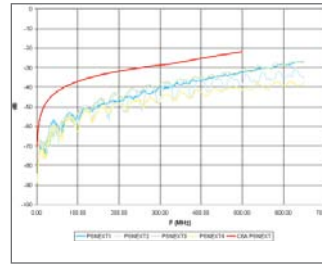
NEXTSPEED® ASCENT 10GbE Performance Data

The NEXTSPEED® ASCENT 10GbE UTP cabling infrastructure system was tested in configurations from 1m to 100m.

Worst-Case Channel Configuration for ANEXT



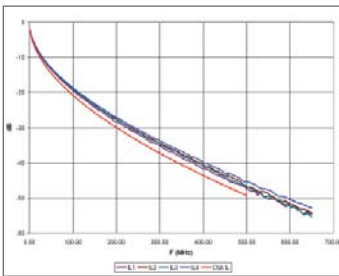
Power-Sum Near-End Crosstalk (PSNEXT)



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 |

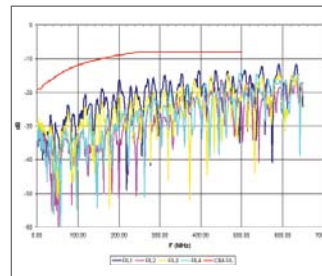
Attenuation



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 |

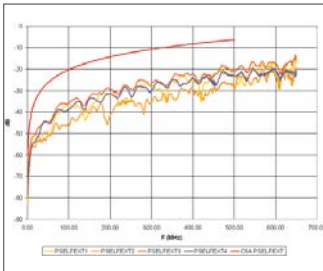
Return Loss



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 |

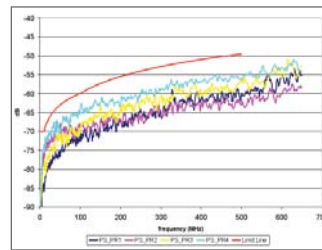
Power-Sum Equal Level Far-End Crosstalk (PSELFEXT)



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 |

Hubbell 10GbE Warranty Coverage

| Terms | What's Covered (Must be a Hubbell CI) | Support | Application Assurance |
|---|---------------------------------------|------------------------------------|--|
| 25 Years | Cable | Installation Issues | All existing and future applications developed under ANSI (TIA, IEEE, ISO) required to operate over Category 5e/6/6a rated cabling |
| | Connecting Hardware | Product Replacement (if defective) | |
| | Labor | Labor | |
| | Applications* | Technical Representative | |
| Hubbell Certified Installer (CI) must install end-to-end Hubbell solution, including patch cords. | | | |



Application Guarantee

- ◆ Guaranteed to meet IEEE 802.3an requirements for 10GBASE-T operation.
- ◆ Guaranteed to support any IEEE standardized applications specified to operate over Category 5, 5e, 6 or 6a cabling.

* Proposed draft.

System Performance Guarantee

- ◆ Guaranteed all components meet ANEXT requirements as specified in TIA-568-B.2-10*
- ◆ Guaranteed to meet PSANEXT requirement up to 500MHz.
- ◆ Guaranteed to meet ANEXT requirement in channel configurations from 1 to 100m.
- ◆ Guaranteed to support PoE and the emerging PoE+ standards.
- ◆ Guaranteed backward compatible with 5, 5e, 6.

Jacks, NEXTSPEED® Ascent 10GbE

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

| Color | Wiring | Catalog No. |
|--------------|-----------|----------------|
| Black | Universal | HXJ6ABK |
| Office White | Universal | HXJ6AOW |
| Blue | Universal | HXJ6AB |
| Orange | Universal | HXJ6AOR |
| Green | Universal | HXJ6AGN |
| Gray | Universal | HXJ6AGY |
| White | Universal | HXJ6AW |
| Yellow | Universal | HXJ6AY |



Patch Panels, NEXTSPEED® Ascent 10GbE



P6A24U

NEXTSPEED® Ascent 10GbE are supplied with labeling for T568B wiring. The 8-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.

| Ports | Height | Color* | Catalog No. |
|-------|-------------|--------|---------------|
| 24 | 1.75" (45) | Black | P6A24U |
| 48 | 3.50" (89) | Black | P6A48U |
| 96 | 7.00" (178) | Black | P6A96U |

* Add 'S' to catalog number for silver finish.

Patch Cords, NEXTSPEED® Ascent 10GbE



The NEXTSPEED® The Ascent 10GbE 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.

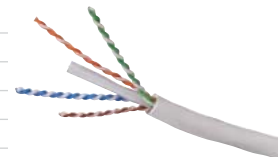
| Color | Blue | Gray | White | Yellow |
|-------------|----------------|-----------------|----------------|----------------|
| Catalog No. | PC6ABXX | PC6AGYXX | PC6AWXX | PC6AYXX |

XX = Length: '03' = 3', '05' = 5', '07' = 7', '10' = 10', '15' = 15', '20' = 20'.

UTP Cable, NEXTSPEED® Ascent 10GbE, 4-pair

NEXTSPEED® Ascent 10GbE 4-pair UTP cable 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 10GbE cable is your perfect solution.

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



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 |

* 6-110, 4-pair connecting clips.

1-Punch™ Termination Tools

NEXTSPEED® Ascent 10GbE 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 cable terminations more reliable and higher quality than traditional 110 termination.

For XCELERATOR™ Jacks

| Description | Catalog No. |
|---|----------------|
| 1-Punch™ tool with XJ head, blades and HXTA termination aid | TX4P |
| 1-Punch™ XJ replacement head | TX4PH |
| 1-Punch™ XJ replacement blades | TX4PHBL |
| Snap-X termination puck (bag of 25) | HXTP25 |

For NEXTSPEED® Ascent Patch Panels

| Description | Catalog No. |
|--|-----------------|
| 1-Punch™ tool with panel head and blades | TX4PP |
| 1-Punch™ panel replacement head | TX4PPH |
| 1-Punch™ panel replacement blades | TX4PPHBL |



TX4P



HXTP25



Hubbell Premise Wiring

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Worldwide Locations

| | | | | | |
|---|------------------|-----------------------|---------------------------------------|------------------|-----------------------|
| Hubbell Premise Wiring, Asia Pacific | 852-2836-7131 | Fax: 852-2836-7132 | Hubbell Premise Wiring, Latin America | 305-408-4501 | Fax: 305-408-8201 |
| Hubbell Canada Inc. | 905-839-1138 | Fax: 905-839-9108 | Hubbell de Mexico, S.A. de C.V. | (5255) 9151-9999 | Fax: (5255) 9151-9989 |
| Hubbell Premise Wiring, Central America | 506-309-4158 | Fax: 506-260-1616 | Hubbell Premise Wiring, Middle East | 971-4-393-4192 | Fax: 971-4-393-4194 |
| Hubbell Premise Wiring, China | 86-21-6374 2660 | Fax: 86-21-6374 2799 | Hubbell Premise Wiring, Puerto Rico | 787-855-1075 | Fax: 787-855-3265 |
| Hubbell Premise Wiring, Europe | 44-01283 500500 | Fax: 44-01283 500400 | Hubbell-Taian Co., Ltd., Taiwan | 886-2-2522-1862 | Fax: 886-2-2522-1872 |
| Hubbell Wiring Systems, India | 91-80-4022-4089 | Fax: 91-80-4022-4033 | Hubbell Premise Wiring, Venezuela | 58-212-5156482 | Fax: 58-212-6627258 |
| Hubbell Int'l. Inc., Korea Branch | (82 2) 2607 1363 | Fax: (82 2) 2603 7386 | | | |