

uBR10012 부트 시퀀스

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소개

이 문서에서는 Cisco uBR1000 Series Universal Broadband Router를 PRE(Performance Routing Engine)에서 RF(Radio Frequency), LAN, WAN 및 TCC+(Timing, Communications and Control Plus) 카드로 부팅하는 순서에 대해 설명합니다.

사전 요구 사항

요구 사항

이 문서의 독자는 다음 주제에 대해 알고 있어야 합니다.

- 기본 Cisco 라우터 아키텍처
- Cisco IOS® 소프트웨어 명령줄 인터페이스

사용되는 구성 요소

이 문서의 정보는 다음 소프트웨어 및 하드웨어 버전을 기반으로 합니다.

- Cisco uBR10012 Universal Broadband Router
- uBR1000 Series용 Cisco IOS 소프트웨어(UBR10K-P6-M)

이 문서의 정보는 특정 랩 환경의 디바이스를 토대로 작성되었습니다. 이 문서에 사용된 모든 디바이스는 초기화된(기본) 컨피그레이션으로 시작되었습니다. 현재 네트워크가 작동 중인 경우, 모든 명령어의 잠재적인 영향을 미리 숙지하시기 바랍니다.

표기 규칙

문서 규칙에 대한 자세한 내용은 [Cisco 기술 팁 표기 규칙](#)을 참조하십시오.

부팅 전 시퀀스

PRE의 부팅 시퀀스에는 다음과 같은 개별 단계가 있습니다.

1. 부팅 도우미를 로드합니다.

```
c10k-eboot-mz.120-16.6.ST1
```

라인 카드는 지원되지 않습니다. PRE의 FE(Fast Ethernet) 인터페이스만 사용할 수 있습니다.

2. 기본 이미지를 로드합니다.

```
ubr10k-p6-mz.122-1.XF  
ubr10k-k8p6-mz.122-1.XF
```

다음 유형의 라인 카드는 펌웨어의 PRE를 폴링합니다. 케이블 라인 카드 TCC+토스터기가비트 이더넷옵티컬 캐리어 12(OC-12) POS(Power-On Service) 이 출력은 실제 라이브 부팅 시퀀스 및 로그 메시지를 표시합니다.

```
System Bootstrap, Version 12.0(9r)SL2, RELEASE SOFTWARE (fcl)  
!--- Bootstrap version. Copyright (c) 2000 by cisco Systems, Inc. Reset Reason Register =  
RESET_REASON_RESET_REG (0x76) !--- Reason for reload: RESET. C10000 platform with 524288 Kbytes  
of main memory Self decompressing the image : #####  
##### Self decompressing the image :  
##### Self decompressing the image :  
##### Self decompressing the image :  
##### Self decompressing the image :  
##### Self decompressing the image :  
##### Self decompressing the image :  
##### [OK] Restricted Rights Legend Use,  
duplication, or disclosure by the Government is subject to restrictions as set forth in  
subparagraph (c) of the Commercial Computer Software - Restricted Rights clause at FAR sec.  
52.227-19 and subparagraph (c) (1) (ii) of the Rights in Technical Data and Computer Software  
clause at DFARS sec. 252.227-7013. cisco Systems, Inc. 170 West Tasman Drive San Jose,  
California 95134-1706 Cisco Internetwork Operating System Software IOS (tm) 10000 Software  
(UBR10K-P6-M), Version 12.2(1)XF, EARLY DEPLOYMENT RELEASE SOFTWARE (fcl) !--- Main image. TAC  
Support: http://www.cisco.com/cgi-bin/ibld/view.pl?i=support Copyright (c) 1986-2001 by cisco  
Systems, Inc. Compiled Fri 18-May-01 16:15 by ccai Image text-base: 0x60008960, data-base:  
0x612E0000 cisco uBR10000 (PRE-RP) processor with 393215K/131072K bytes of memory. !---  
Processor type. Processor board ID TBA05100542 R7000 CPU at 262Mhz, Implementation 39, Rev 2.1,  
256KB L2, 2048KB L3 Cache Backplane version 1.0, 8 slot Last reset from register reset Toaster  
processor tmc0 is running. Toaster processor tmc1 is running. 1 Ethernet/IEEE 802.3 interface(s)  
1 FastEthernet/IEEE 802.3 interface(s) 509K bytes of non-volatile configuration memory. 46976K  
bytes of ATA PCMCIA card at slot 0 (Sector size 512 bytes). 32768K bytes of Flash internal SIMM  
(Sector size 256KB). 00:00:15: Downloading Microcode: file=system:pxf/c10k102-3.ucode,  
version=102.3(40.4), description=Experimental Software created Wed 31-Jan-01 16:22 by clauer in  
view clauer-omega_dev !--- Microcode for Parallel eXpress Forwarding (PXF) engine. 00:00:16:  
%SYS-7-NV_BLOCK_INIT: Initalized the geometry of nvram 00:00:22: %LINK-3-UPDOWN: Interface  
Ethernet0/0/0, changed state to up !--- 10Base2 interface. 00:00:22: %LINK-5-CHANGED: Interface  
FastEthernet0/0/0, changed state to reset !--- Management FE interface. !--- Each of these lines  
of output appear on one line: 00:00:23: %UBR10000-5-USFREQCHG: Interface Cable6/1/0 Port U0,  
frequency changed to 34.992 MHz 00:00:23: %UBR10000-5-UPDOWN: Interface Cable6/1/0 Port U0,  
changed state to down 00:00:23: %UBR10000-5-UPDOWN: Interface Cable6/1/0 Port U1, changed state  
to down 00:00:23: %UBR10000-5-UPDOWN: Interface Cable6/1/0 Port U2, changed state to down  
00:00:23: %UBR10000-5-UPDOWN: Interface Cable6/1/0 Port U3, changed state to down 00:00:24:  
%LINEPROTO-5-UPDOWN: Line protocol on Interface Ethernet0/0/0, changed state to up 00:00:24:
```

```

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0/0, changed state to down
00:00:25: %LINK-5-CHANGED: Interface POS2/0/0, changed state to administratively down 00:00:25:
%LINK-5-CHANGED: Interface GigabitEthernet4/0/0, changed state to administratively down
00:00:26: %LINEPROTO-5-UPDOWN: Line protocol on Interface POS2/0/0, changed state to down
00:00:26: %LINEPROTO-5-UPDOWN: Line protocol on Interface GigabitEthernet4/0/0, changed state to
down 00:00:29: !!pxf clients started, forwarding code operational!! !--- The PFX engine
microcode is decompressed and executed. 00:00:30: %SYS-5-RESTART: System restarted -- Cisco
Internetwork Operating System Software IOS (tm) 10000 Software (UBR10K-P6-M), Version 12.2(1)XF,
EARLY DEPLOYMENT RELEASE SOFTWARE (fc1) TAC Support: http://www.cisco.com/cgi-
bin/ibld/view.pl?i=support Copyright (c) 1986-2001 by cisco Systems, Inc. Compiled Fri 18-May-01
16:15 by ccai 00:00:30: %SYS-6-BOOTTIME: Time taken to reboot after reload = 349 seconds !---
The time taken to boot after the reload initiated. 00:00:31: %LINK-3-UPDOWN: Interface
FastEthernet0/0/0, changed state to up 00:00:32: %LINEPROTO-5-UPDOWN: Line protocol on Interface
FastEthernet0/0/0, changed state to up 00:00:34: %IPCOIR-5-CARD_DETECTED: Card type 2cable-mc28
(0x254) in slot 6/1 !--- RF card registration request received. 00:00:34: %IPCOIR-5-
CARD_DETECTED: Card type 2cable-mc28 (0x254) in slot 7/0 !--- RF card registration request
received. 00:00:34: %IPCOIR-5-CARD_LOADING: Loading card in slot 6/1 !--- TFTP is used to
transfer the RF card microcode. 00:00:34: %IPCOIR-5-CARD_LOADING: Loading card in slot 7/0 !---
TFTP is used to transfer the RF card microcode. 00:00:34: %IPCOIR-5-CARD_DETECTED: Card type
2cable-tccplus (0x2AF) in slot 1/1 !--- TCC+ registration request received. 00:00:34: %IPCOIR-5-
CARD_DETECTED: Card type loc12pos-1 (0x164) in slot 2/0 !--- LAN to WAN registration received.
00:00:34: %IPCOIR-5-CARD_DETECTED: Card type lgigetherne-1 (0x166) in slot 4/0 !--- LAN to WAN
registration received. 00:00:34: %IPCOIR-2-CARD_UP_DOWN: Card in slot 1/1 is up. Notifying
2cable-tccplus driver. 00:00:34: %IPCOIR-2-CARD_UP_DOWN: Card in slot 2/0 is up. Notifying
loc12pos-1 driver. 00:00:34: %UBR10KTCC-2-ACTIVE_TCC: TCCplus card 1/1 is active with Local
oscillator as clock reference 00:00:35: %IPCOIR-2-CARD_UP_DOWN: Card in slot 4/0 is up.
Notifying lgigetherne-1 driver. 00:00:35: %C10KGE-6-GBIC_OK: Interface GigabitEthernet4/0/0,
1000BASE-SX Gigabit Interface Converter (GBIC) inserted

```

RF 라인 카드 부팅 순서

RF 라인 카드의 부팅 시퀀스에는 다음과 같은 개별 단계가 있습니다.

1. ROM Monitor(ROMmon)는 라인 카드에 부트 도우미를 로드합니다.
2. Boot helper는 소프트웨어 버전 번호와 카드 유형을 전송합니다.
3. PRE는 카드 유형에 해당하는 이미지를 다운로드합니다.
4. Cisco IOS Software 이미지가 압축 해제되고 실행됩니다.
5. 데이터가 PRE로 전달되도록 Barium 인터페이스가 설정됩니다.

```
brubeck# debug ipc events
```

```

Special Events debugging is on
*Aug 1 05:12:10.596: IPC: Registration request for seat 'clc_6_1'
!--- The RF line card requests registration with the software version !--- number and the line
card type. *Aug 1 05:12:10.604: IPC: Got an open port request for port 0x10008 *Aug 1
05:12:10.604: IPC: Got an open port request for port 0x10009 1w1d: %IPCOIR-5-CARD_DETECTED: Card
type 2cable-mc28 (0x254) in slot 6/1 !--- The card type is detected. 1w1d: %IPCOIR-2-
CARD_UP_DOWN: Card in slot 6/1 is up. Notifying 2cable-mc28 driver. !--- Microcode for the RF
line card. SLOT 6/1: 00:00:16: %IPCGRP-6-UCODEVER: Reported microcode version, 990227862. SLOT
6/1: 00:00:16: %IPCGRP-6-INTENBDISAB: Interface disabled <REMOVED> !--- The main image is
downloaded, decompressed, and executed. SLOT 6/1: 00:00:19: %IPCGRP-6-BARENBDISAB: Barium
interface enabled !--- Enable Barium interface. 1w1d: %LINK-3-UPDOWN: Interface Cable6/1/1,
changed state to up SLOT 6/1: 00:00:20: %LINK-3-UPDOWN: Interface Cable6/1/1, changed state to
up SLOT 6/1: 00:00:20: %LINK-3-UPDOWN: Interface Barium3/0, changed state to up !--- The Barium
interface is set to up.

1w1d: %LINEPROTO-5-UPDOWN: Line protocol on Interface Cable6/1/1,
changed state to up
1w1d: %LINEPROTO-5-UPDOWN: Line protocol on Interface Cable6/1/0,
changed state to up

```

```
SLOT 6/1: 00:00:21: %LINEPROTO-5-UPDOWN: Line protocol on Interface Barium3/0,  
changed state to up  
!--- The Barium line protocol is up and can now pass data to the PRE.
```

부팅 도우미는 소프트웨어 버전 번호와 카드 유형을 keepalive로 계속 전송합니다. 마이크로코드가 PRE에서 업그레이드되면 새로운 마이크로코드가 다운로드되고 업그레이드가 자동으로 수행됩니다.

LAN 또는 WAN 카드 부팅 시퀀스

LAN 또는 WAN 카드의 부팅 시퀀스에는 다음과 같은 개별 단계가 있습니다.

1. 라인 카드는 소프트웨어 버전 번호와 카드 유형을 사용하여 등록을 요청합니다.
2. PRE는 카드 유형에 해당하는 이미지를 다운로드합니다.
3. Cisco IOS Software 이미지가 압축 해제되고 실행됩니다.

```
brubeck# debug ipc events
```

```
Special Events debugging is on  
*Aug 1 05:08:01.496: IPC: Registration request for seat  
                  'C10K Line Card slot 2/0'  
!--- The LAN or WAN card requests registration with the software !--- version and the card type.  
*Aug 1 05:08:01.500: IPC: Got an open port request for port 0x10008 lwld: %IPCOIR-5-  
CARD_DETECTED: Card type loc12pos-1 (0x164) in slot 2/0 !--- The card type is detected. lwld:  
%IPCOIR-5-CARD_LOADING: Loading card in slot 2/0 !--- TFTP is used to transfer the microcode to  
the line card. lwld: %C10K-5-LC_NOTICE: Slot[2/0] loc12pos-1 Image Downloaded...Booting... !---  
The image is decompressed and the code is executed.
```

TCC+ 카드 부팅 시퀀스

TCC+ 카드의 부팅 시퀀스에는 다음과 같은 개별 단계가 있습니다.

1. TCC+ 카드는 소프트웨어 버전 번호와 카드 유형을 사용하여 등록을 요청합니다.
2. PRE는 카드 유형에 해당하는 이미지를 다운로드합니다.
3. Cisco IOS Software 이미지가 압축 해제되고 실행됩니다.

```
brubeck# debug ipc events
```

```
Special Events debugging is on  
*Aug 1 07:00:40.751: IPC: Registration request for seat  
                  'C10K Line Card slot 1/1'  
!--- The TCC+ card requests registration. *Aug 1 07:00:40.755: IPC: Got an open port request for  
port 0x10008 lwld: %IPCOIR-5-CARD_DETECTED: Card type 2cable-tccplus (0x2AF) in slot 1/1 !---  
The card type is detected. lwld: %IPCOIR-5-CARD_LOADING: Loading card in slot 1/1 !--- TFTP is  
used to transfer the microcode to the TCC+ card. lwld: %C10K-5-LC_NOTICE: Slot[1/1] utility-card  
Image Downloaded...Booting... !--- The image is decompressed and the code is executed. lwld:  
%IPCOIR-5-CARD_DETECTED: Card type 2cable-tccplus (0x2AF) in slot 1/1 lwld: %IPCOIR-2-  
CARD_UP_DOWN: Card in slot 1/1 is up. Notifying 2cable-tccplus driver. lwld: %UBR10KTCC-2-  
ACTIVE_TCC: TCCplus card 1/1 is active with Local oscillator as clock reference !--- The card is  
active and reports its clock source.
```

관련 정보

- [광대역 케이블 기술 지원](#)
- [Cisco uBR10012 Universal Broadband Router](#)
- [Cisco uBR1000 Series Universal Broadband Router 릴리스 정보](#)
- [Technical Support - Cisco Systems](#)