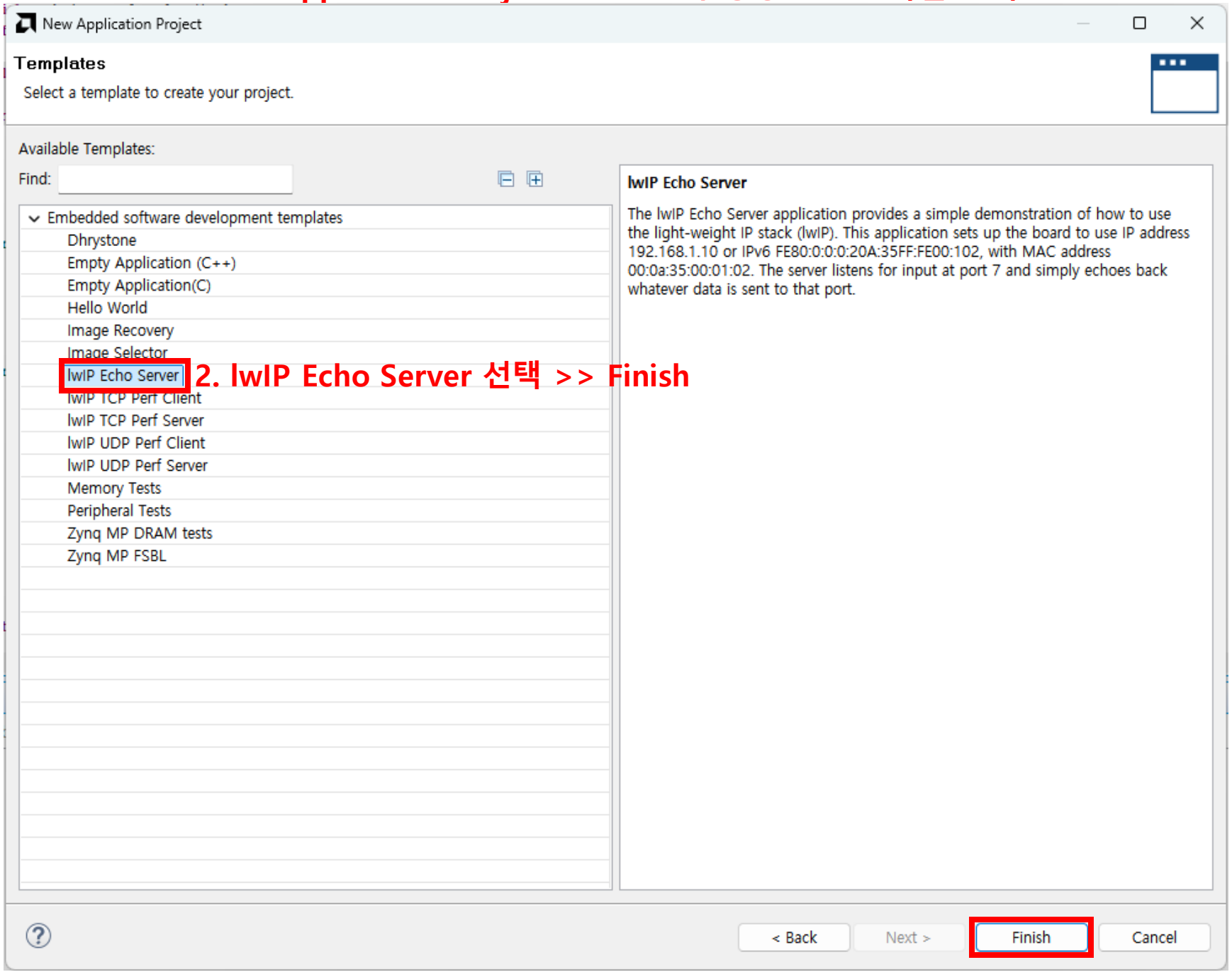
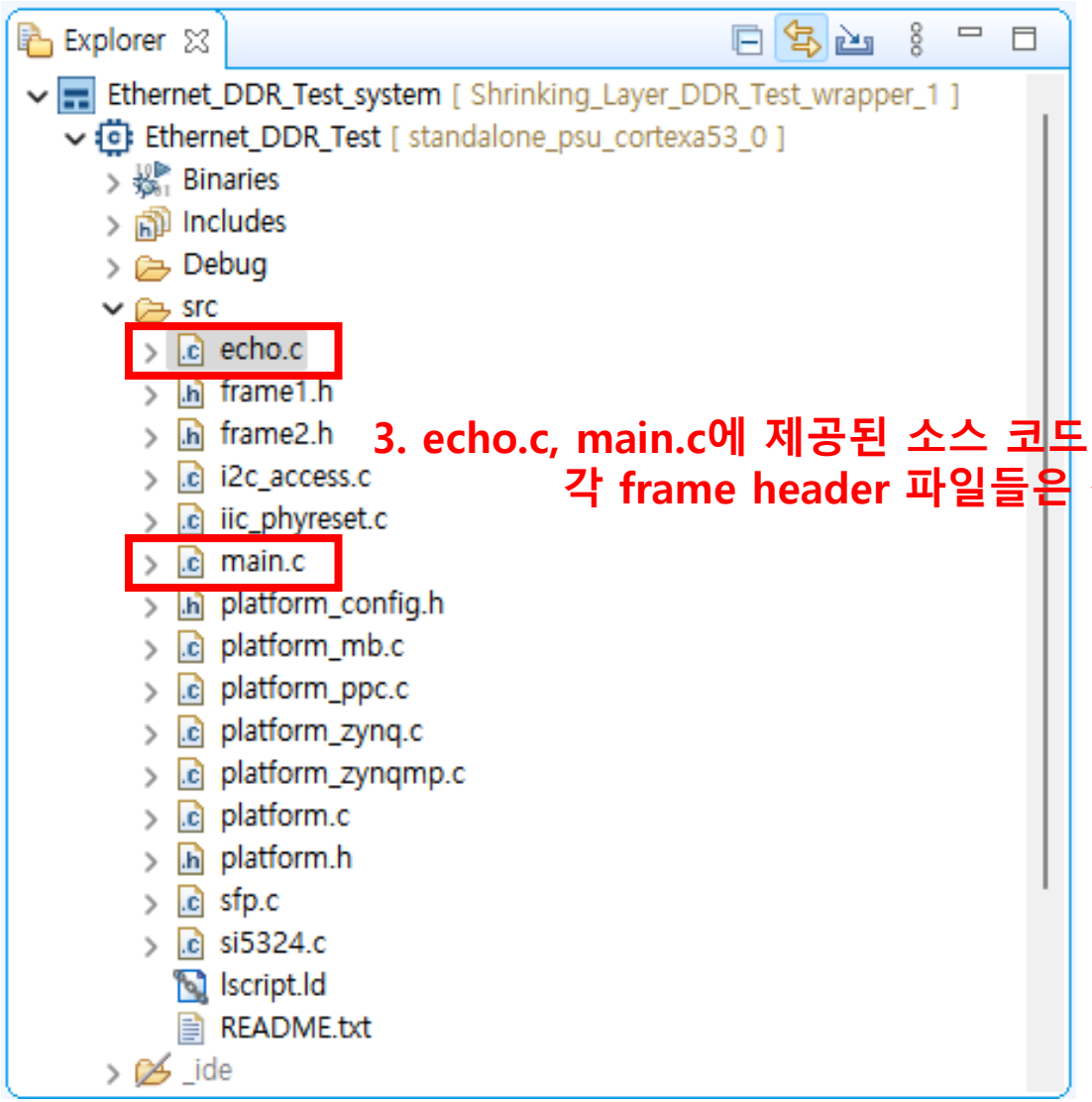
1. Vitis Application Project 생성

1. File >> New >> Application Project >> 본인이 생성한 .xsa 파일 선택 >> Standalone/64bit

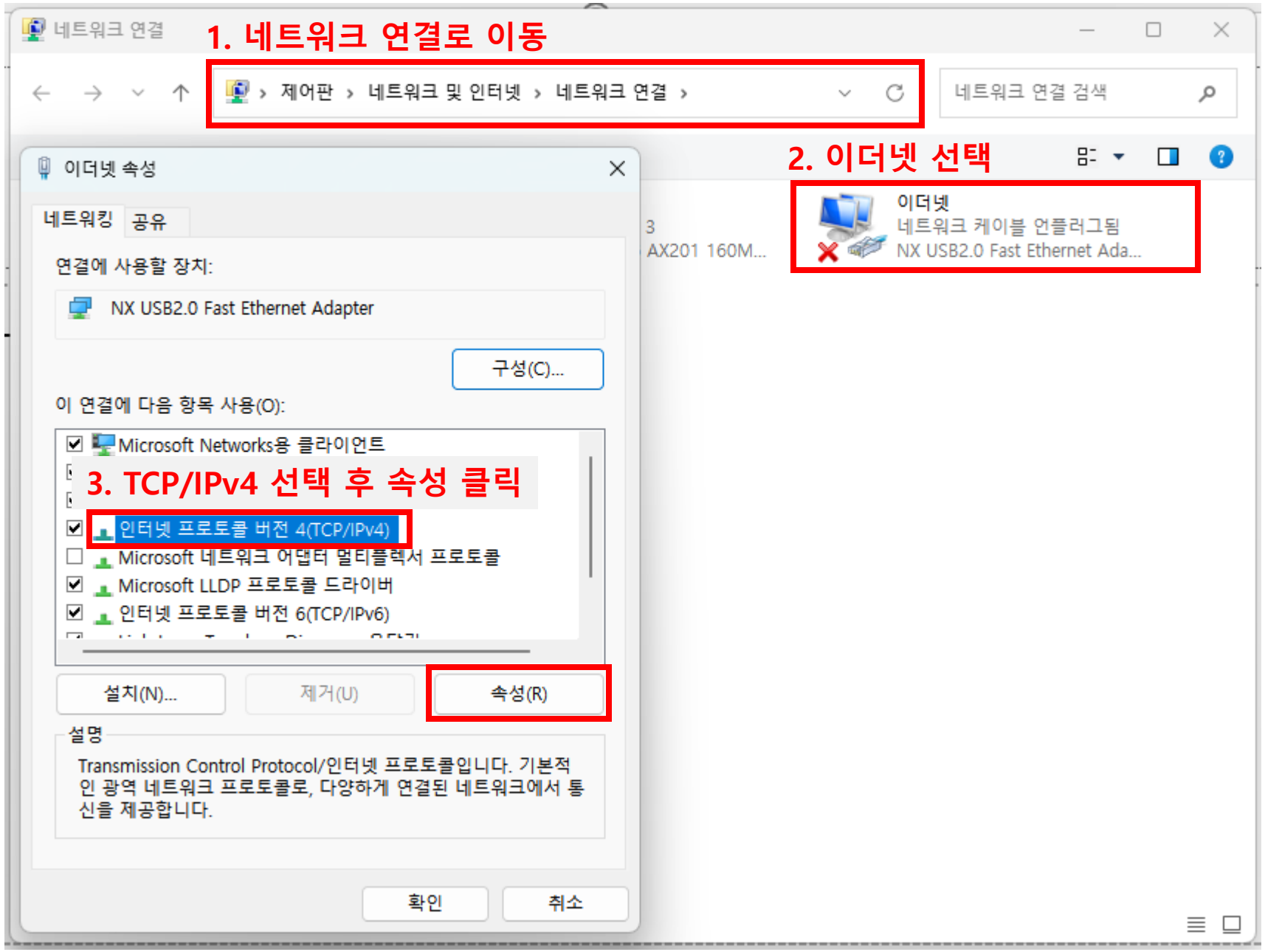


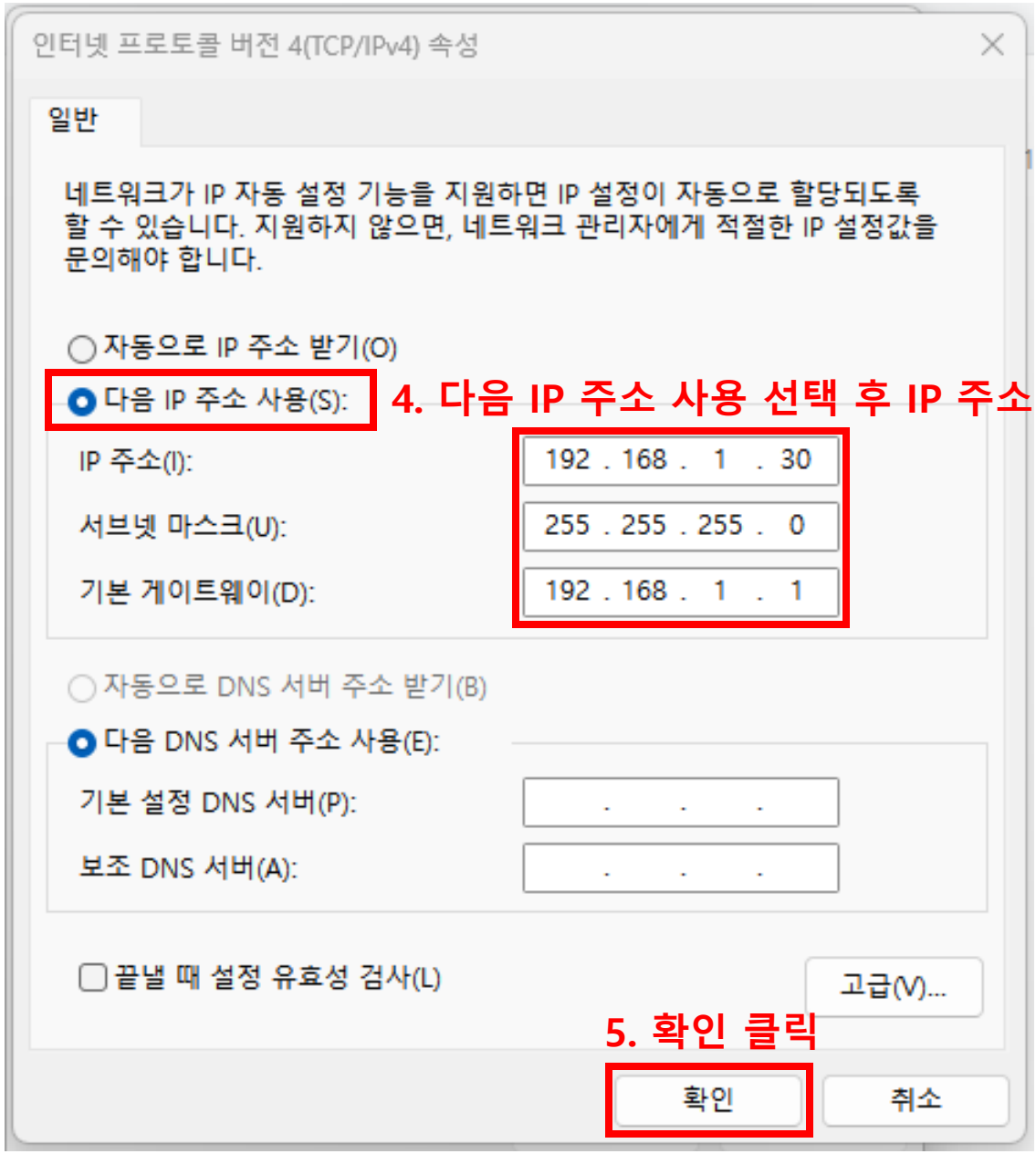
2. lwIP Echo Server 선택 >> Finish



3. echo.c, main.c에 제공된 소스 코드 덮어쓰기
각 frame header 파일들은 각자 설계한 ip에 맞게 생성

2. PC IP 주소 설정


네트워크 연결
1. 네트워크 연결로 이동
제어판 › 네트워크 및 인터넷 › 네트워크 연결 ›
네트워크 연결 검색
2. 이더넷 선택
이더넷
네트워크 케이블 언플러그됨
NX USB2.0 Fast Ethernet Ada...
3
AX201 160M...
이더넷 속성
네트워킹
공유
연결에 사용할 장치:
NX USB2.0 Fast Ethernet Adapter
구성(C)...
이 연결에 다음 항목 사용(O):
Microsoft Networks용 클라이언트
3. TCP/IPv4 선택 후 속성 클릭
인터넷 프로토콜 버전 4(TCP/IPv4)
Microsoft 네트워크 어댑터 멀티플렉서 프로토콜
Microsoft LLDP 프로토콜 드라이버
인터넷 프로토콜 버전 6(TCP/IPv6)
설치(N)...
제거(U)
속성(R)
설명
Transmission Control Protocol/인터넷 프로토콜입니다. 기본적인 광역 네트워크 프로토콜로, 다양하게 연결된 네트워크에서 통신을 제공합니다.
확인
취소

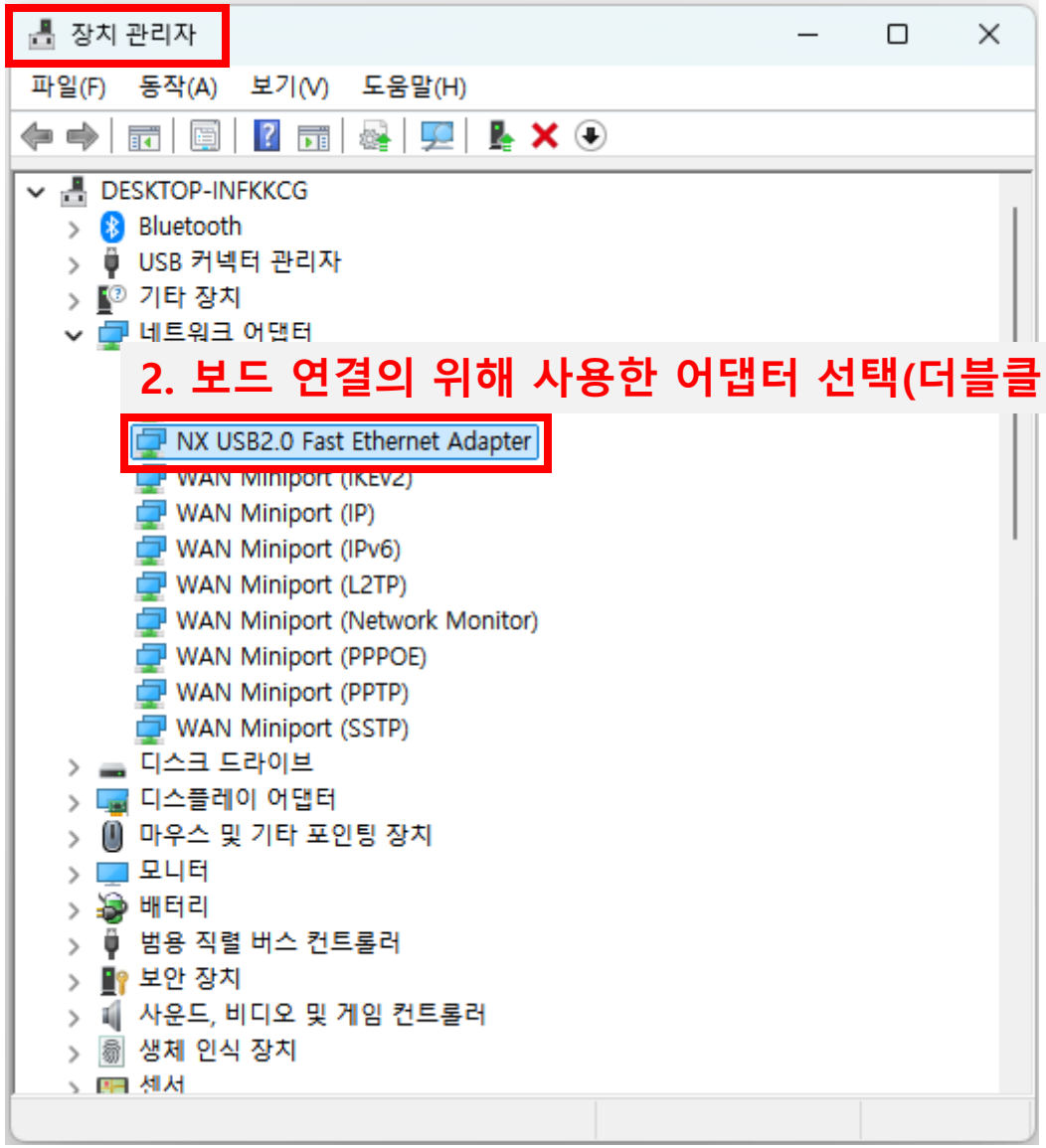


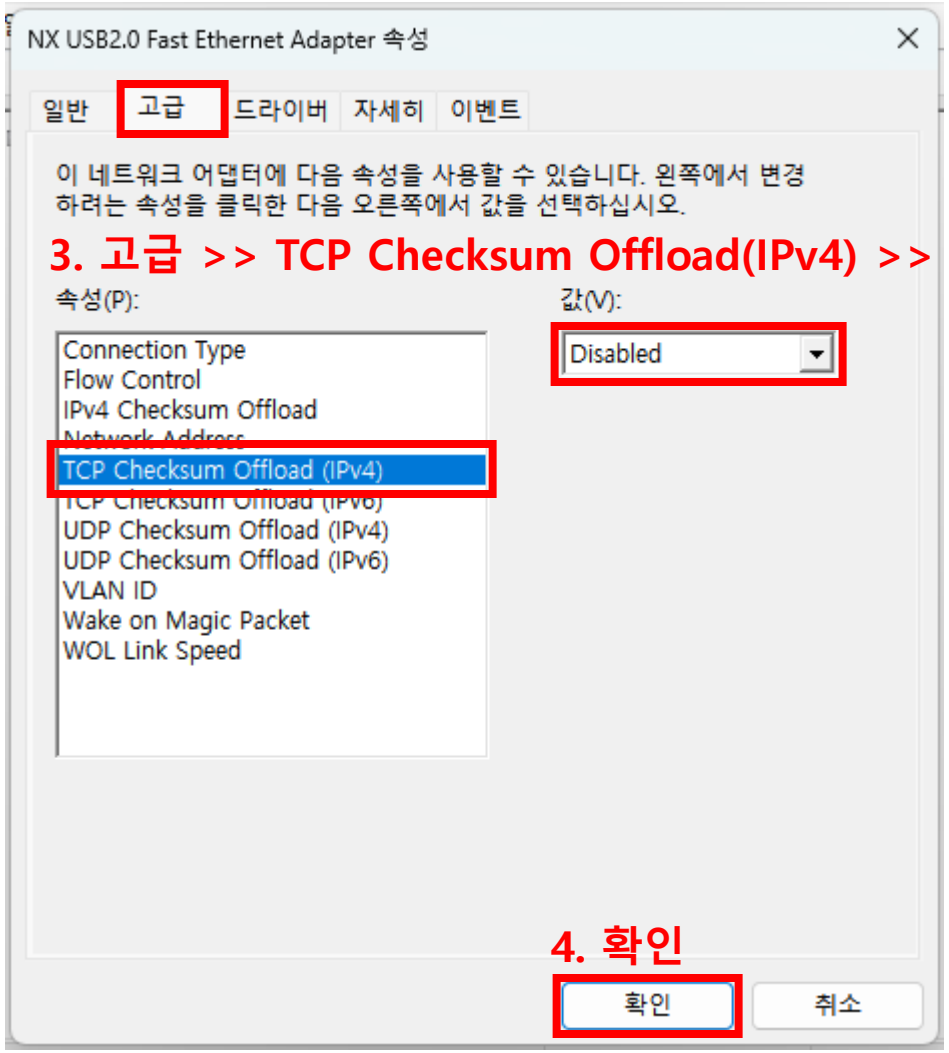
4. 다음 IP 주소 사용 선택 후 IP 주소 값 다음과 같이 할당

5. 확인 클릭

3. 네트워크 어댑터 옵션 설정

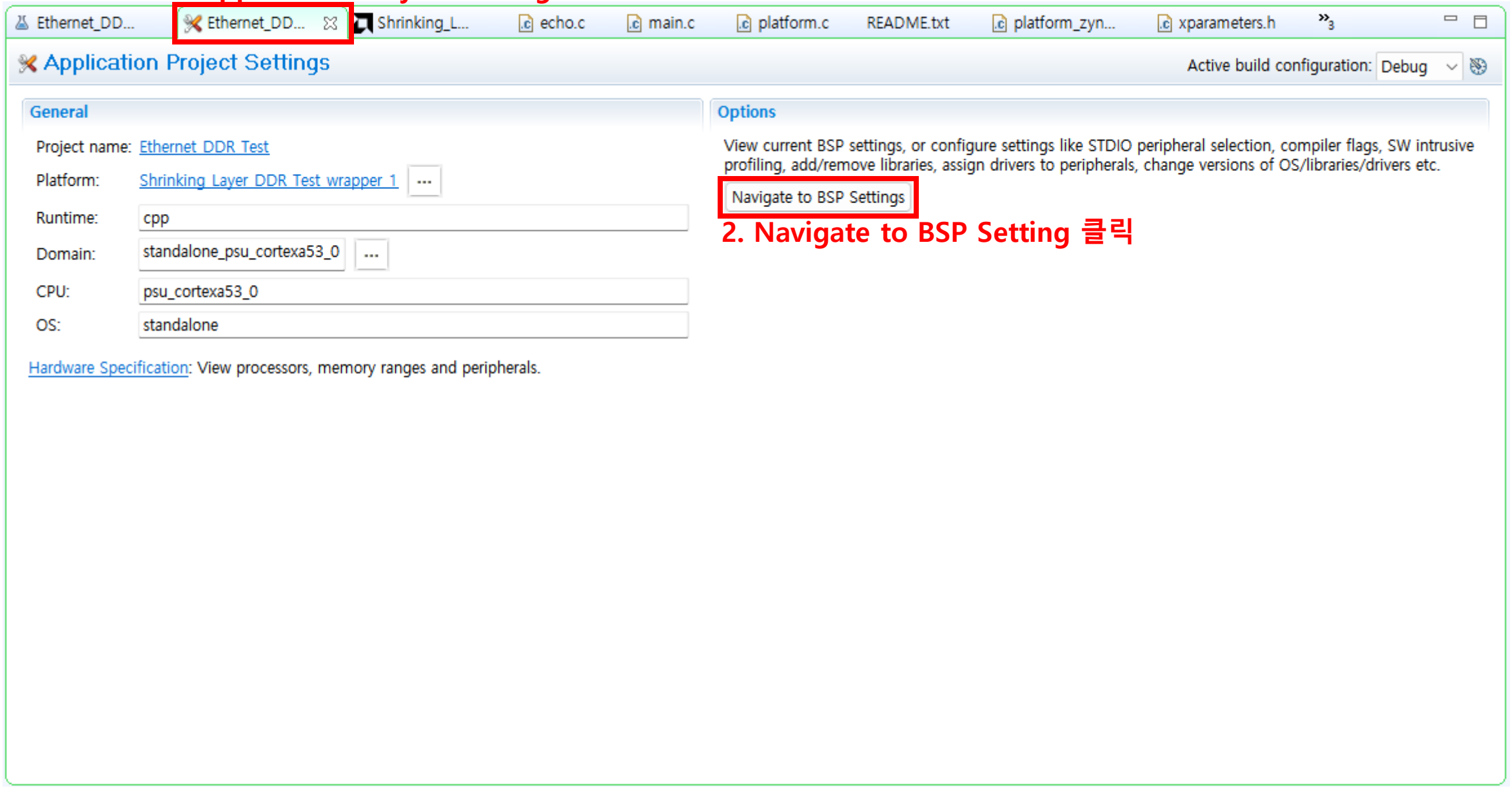
1. 장치 관리자로 이동


장치 관리자
파일(F) 동작(A) 보기(V) 도움말(H)
DESKTOP-INFKKCG
Bluetooth
USB 커넥터 관리자
기타 장치
네트워크 어댑터
2. 보드 연결의 위해 사용한 어댑터 선택(더블클릭)
NX USB2.0 Fast Ethernet Adapter
WAN Miniport (IKEv2)
WAN Miniport (IP)
WAN Miniport (IPv6)
WAN Miniport (L2TP)
WAN Miniport (Network Monitor)
WAN Miniport (PPPOE)
WAN Miniport (PPTP)
WAN Miniport (SSTP)
디스크 드라이브
디스플레이 어댑터
마우스 및 기타 포인팅 장치
모니터
배터리
범용 직렬 버스 컨트롤러
보안 장치
사운드, 비디오 및 게임 컨트롤러
생체 인식 장치
센서

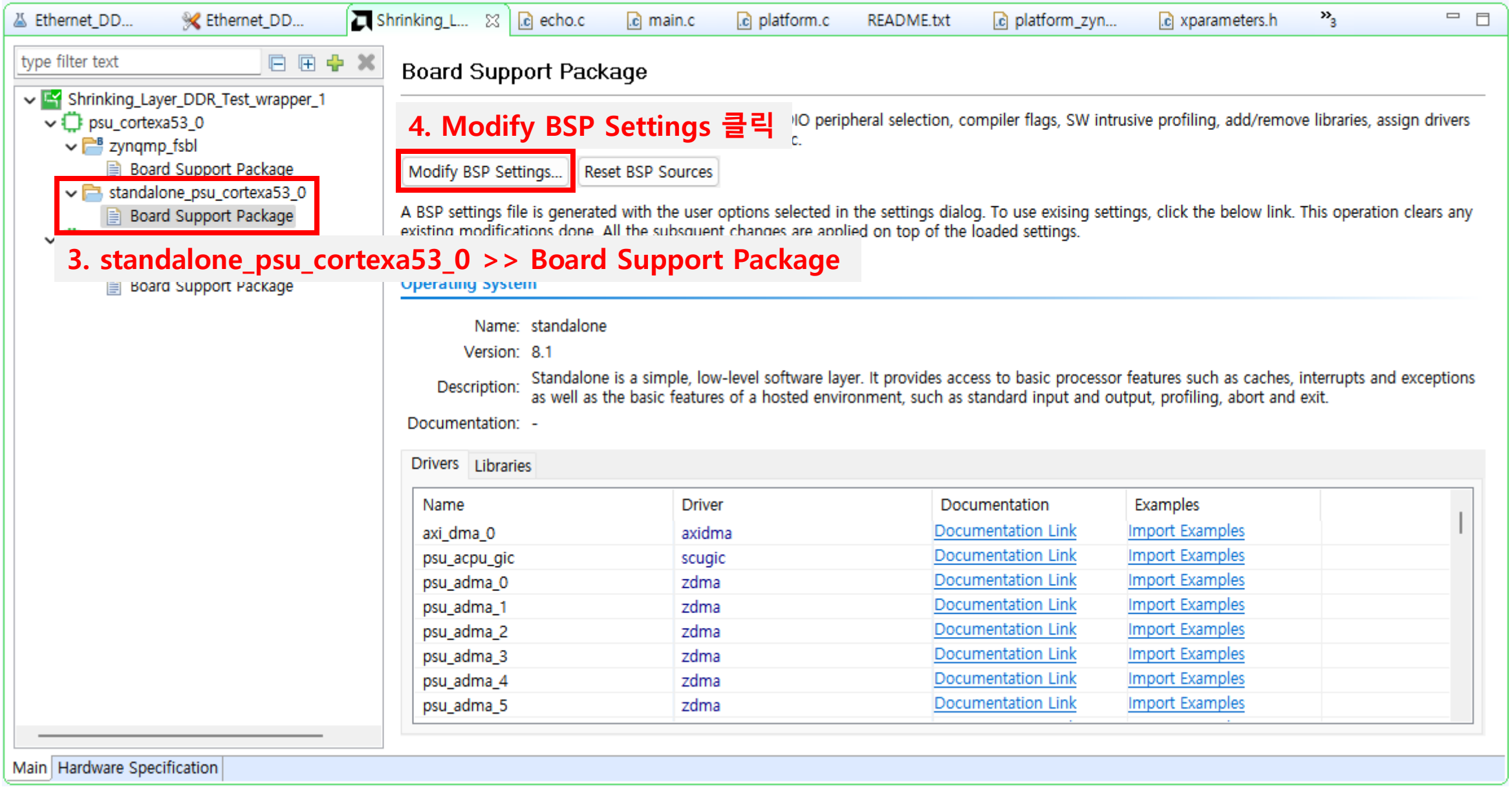

NX USB2.0 Fast Ethernet Adapter 속성
일반
고급
드라이버
자세히
이벤트
이 네트워크 어댑터에 다음 속성을 사용할 수 있습니다. 왼쪽에서 변경
하려는 속성을 클릭한 다음 오른쪽에서 값을 선택하십시오.
3. 고급 >> TCP Checksum Offload(IPv4) >> Disabled
속성(P):
값(V):
Connection Type
Flow Control
IPv4 Checksum Offload
TCP Checksum Offload (IPv4)
UDP Checksum Offload (IPv4)
UDP Checksum Offload (IPv6)
VLAN ID
Wake on Magic Packet
WOL Link Speed
Disabled
4. 확인
확인
취소

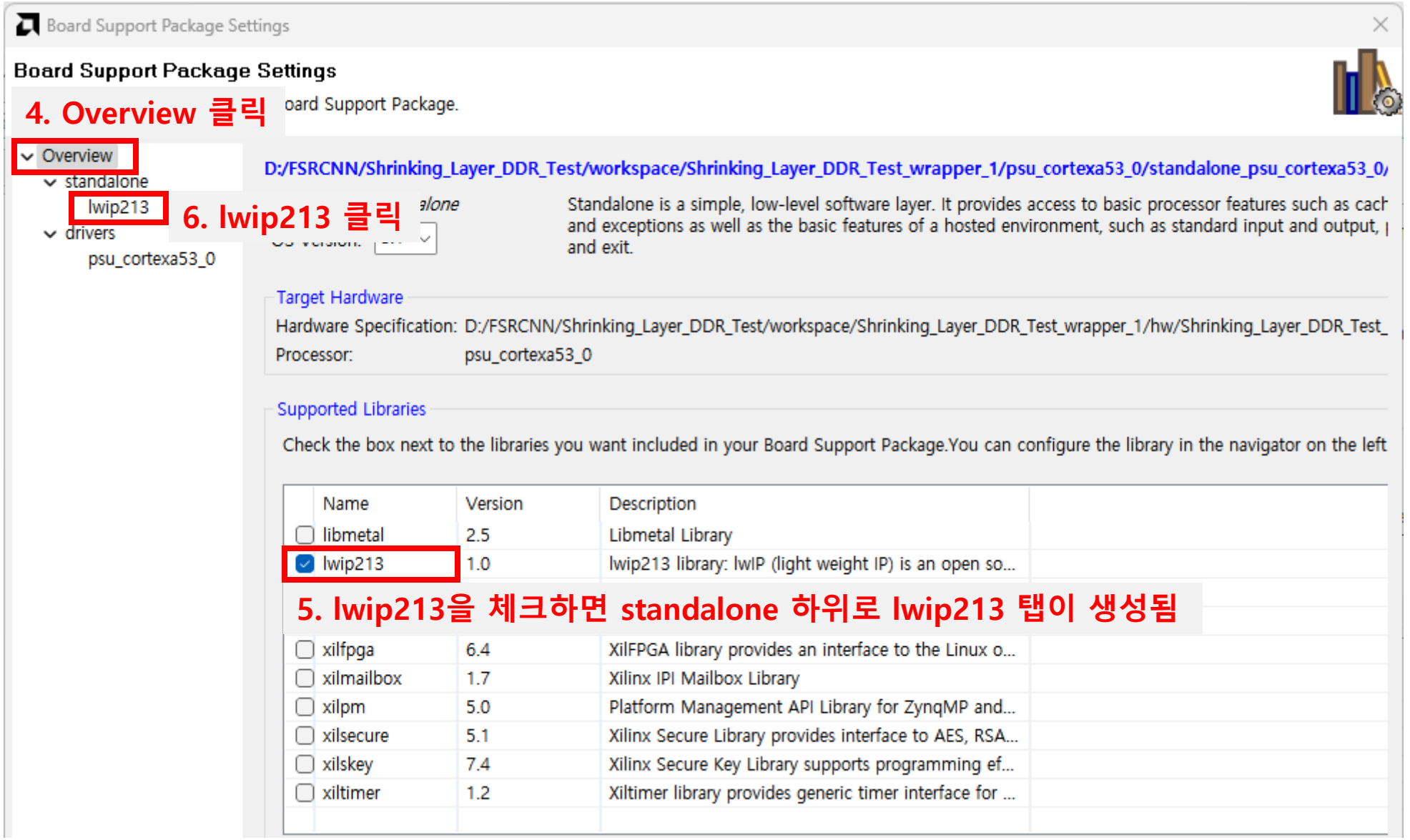
4. BSP Settings 변경

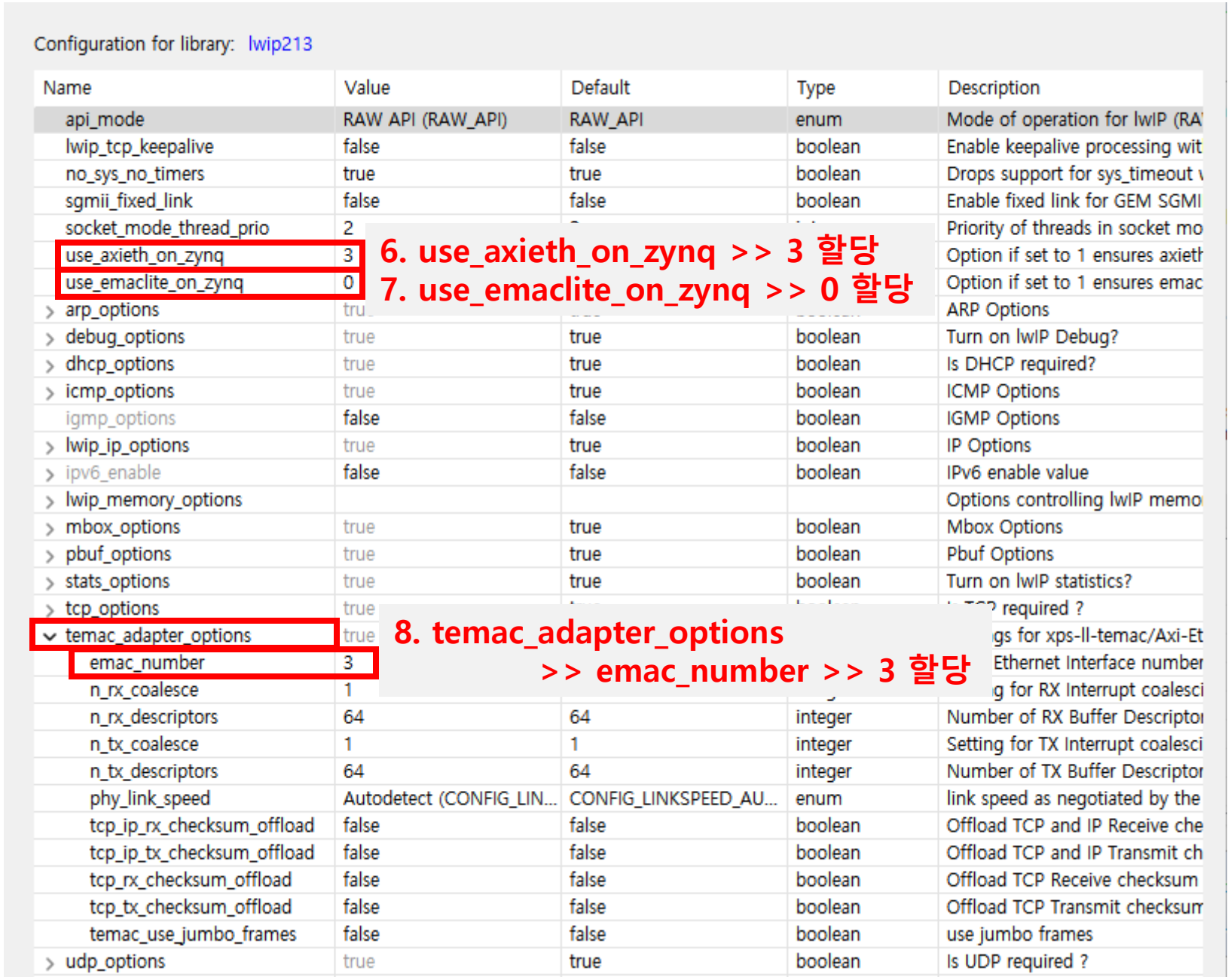
1. Application Project Setting으로 이동



2. Navigate to BSP Setting 클릭


Ethernet_DD...
Ethernet_DD...
Shrinking_L...
echo.c
main.c
platform.c
README.txt
platform_zyn...
xparameters.h
type filter text
Shrinking_Layer_DDR_Test_wrapper_1
psu_cortexa53_0
zynqmp_fsbl
Board Support Package
standalone_psu_cortexa53_0
Board Support Package
3. standalone_psu_cortexa53_0 >> Board Support Package
Board Support Package
4. Modify BSP Settings 클릭
IO peripheral selection, compiler flags, SW intrusive profiling, add/remove libraries, assign drivers
c.
Modify BSP Settings...
Reset BSP Sources
A BSP settings file is generated with the user options selected in the settings dialog. To use exising settings, click the below link. This operation clears any
existing modifications done. All the subsquent changes are applied on top of the loaded settings.
Operating System
Name: standalone
Version: 8.1
Description: Standalone is a simple, low-level software layer. It provides access to basic processor features such as caches, interrupts and exceptions as well as the basic features of a hosted environment, such as standard input and output, profiling, abort and exit.
Documentation: -
Drivers
Libraries
Name
Driver
Documentation
Examples
axi_dma_0
axidma
Documentation Link
Import Examples
psu_acpu_gic
scugic
Documentation Link
Import Examples
psu_adma_0
zdma
Documentation Link
Import Examples
psu_adma_1
zdma
Documentation Link
Import Examples
psu_adma_2
zdma
Documentation Link
Import Examples
psu_adma_3
zdma
Documentation Link
Import Examples
psu_adma_4
zdma
Documentation Link
Import Examples
psu_adma_5
zdma
Documentation Link
Import Examples
Main
Hardware Specification


Board Support Package Settings
Board Support Package Settings
4. Overview 클릭
oard Support Package.
Overview
standalone
lwip213
6. lwip213 클릭
drivers
psu_cortexa53_0
D:/FSRCNN/Shrinking_Layer_DDR_Test/workspace/Shrinking_Layer_DDR_Test_wrapper_1/psu_cortexa53_0/standalone_psu_cortexa53_0/
Standalone is a simple, low-level software layer. It provides access to basic processor features such as cach
and exceptions as well as the basic features of a hosted environment, such as standard input and output,
and exit.
Target Hardware
Hardware Specification: D:/FSRCNN/Shrinking_Layer_DDR_Test/workspace/Shrinking_Layer_DDR_Test_wrapper_1/hw/Shrinking_Layer_DDR_Test_
Processor: psu_cortexa53_0
Supported Libraries
Check the box next to the libraries you want included in your Board Support Package.You can configure the library in the navigator on the left
Name
Version
Description
libmetal
2.5
Libmetal Library
lwip213
1.0
lwip213 library: lwIP (light weight IP) is an open so...
5. lwip213을 체크하면 standalone 하위로 lwip213 탭이 생성됨
xilfpga
6.4
XilFPGA library provides an interface to the Linux o...
xilmailbox
1.7
Xilinx IPI Mailbox Library
xilpm
5.0
Platform Management API Library for ZynqMP and...
xilsecure
5.1
Xilinx Secure Library provides interface to AES, RSA...
xilskey
7.4
Xilinx Secure Key Library supports programming ef...
xiltimer
1.2
Xiltimer library provides generic timer interface for ...


Configuration for library: lwip213
Name
Value
Default
Type
Description
api_mode
RAW API (RAW_API)
RAW_API
enum
Mode of operation for lwIP (RA
lwip_tcp_keepalive
false
false
boolean
Enable keepalive processing wit
no_sys_no_timers
true
true
boolean
Drops support for sys_timeout
sgmii_fixed_link
false
false
boolean
Enable fixed link for GEM SGMI
socket_mode_thread_prio
2
Priority of threads in socket mo
use_axieth_on_zynq
3
Option if set to 1 ensures axieth
use_emaclite_on_zynq
0
Option if set to 1 ensures emac
arp_options
ARP Options
debug_options
true
true
boolean
Turn on lwIP Debug?
dhcp_options
true
true
boolean
Is DHCP required?
icmp_options
true
true
boolean
ICMP Options
igmp_options
false
false
boolean
IGMP Options
lwip_ip_options
true
true
boolean
IP Options
ipv6_enable
false
false
boolean
IPv6 enable value
lwip_memory_options
Options controlling lwIP memo
mbox_options
true
true
boolean
Mbox Options
pbuf_options
true
true
boolean
Pbuf Options
stats_options
true
true
boolean
Turn on lwIP statistics?
tcp_options
true
required ?
temac_adapter_options
true
gs for xps-ll-temac/Axi-Et
emac_number
3
Ethernet Interface numbe
n_rx_coalesce
1
g for RX Interrupt coalesci
n_rx_descriptors
64
64
integer
Number of RX Buffer Descripto
n_tx_coalesce
1
1
integer
Setting for TX Interrupt coalesci
n_tx_descriptors
64
64
integer
Number of TX Buffer Descripto
phy_link_speed
Autodetect (CONFIG_LIN...
CONFIG_LINKSPEED_AU...
enum
link speed as negotiated by the
tcp_ip_rx_checksum_offload
false
false
boolean
Offload TCP and IP Receive che
tcp_ip_tx_checksum_offload
false
false
boolean
Offload TCP and IP Transmit ch
tcp_rx_checksum_offload
false
false
boolean
Offload TCP Receive checksum
tcp_tx_checksum_offload
false
false
boolean
Offload TCP Transmit checksum
temac_use_jumbo_frames
false
false
boolean
use jumbo frames
udp_options
true
true
boolean
Is UDP required ?
6. use_axieth_on_zynq >> 3 할당
7. use_emaclite_on_zynq >> 0 할당
8. temac_adapter_options
>> emac_number >> 3 할당
8. 우 하단의 OK 클릭

※ Bsp Setting을 만지다 보면 Build Project 시 드라이버 누락으로 인한 Error가 발생할 수 있음 ※