

# **DYNAMIC ENGINEERING**

150 DuBois St. Suite C Santa Cruz CA 95060

831-457-8891 Fax 831-457-4793

<http://www.dyneng.com>

[sales@dyneng.com](mailto:sales@dyneng.com)

Est. 1988

## **Software User's Guide (Linux)**

### **BA25**

HDLC Packet Bridge

## BA25

Dynamic Engineering  
150 DuBois St Suite C  
Santa Cruz, CA 95060  
831-457-8891  
831-457-4793 FAX

©2016 by Dynamic Engineering.  
Other trademarks and registered trademarks are owned by their  
respective manufactures.  
Revised 5/18/2016

This document contains information of proprietary interest to Dynamic Engineering. It has been supplied in confidence and the recipient, by accepting this material, agrees that the subject matter will not be copied or reproduced, in whole or in part, nor its contents revealed in any manner or to any person except to meet the purpose for which it was delivered.

Dynamic Engineering has made every effort to ensure that this manual is accurate and complete. Still, the company reserves the right to make improvements or changes in the product described in this document at any time and without notice. Furthermore, Dynamic Engineering assumes no liability arising out of the application or use of the device described herein.

The electronic equipment described herein generates, uses, and can radiate radio frequency energy. Operation of this equipment in a residential area is likely to cause radio interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference.

Dynamic Engineering's products are not authorized for use as critical components in life support devices or systems without the express written approval of the president of Dynamic Engineering.

Connection of incompatible hardware is likely to cause serious damage.



---

---

# Table of Contents

---

---

<b>PRODUCT DESCRIPTION</b>	<b>4</b>
Software Description	4
<b>TEST CONFIGURATION</b>	<b>4</b>
<b>INSTALLATION</b>	<b>5</b>
<b>DIRECTORY LAYOUT</b>	<b>6</b>
Serial Console	6
Invocation parameters	7
Warranty and Repair	8
Service Policy	8
Out of Warranty Repairs	8
For Service Contact:	8

## Product Description

The BA25 product consists of 2 Dynamic Engineering X2 PMC chassis(s) each populated with an XPedite5500 P2020 CPU board and a GSC PMC66-SIO4BXR. The GSC API and driver are utilized for interfacing with the GSC I/O cards. GSC SW has been ported to a big endian, 32 bit platform, thus some modifications were required to accommodate the XPedite platform.

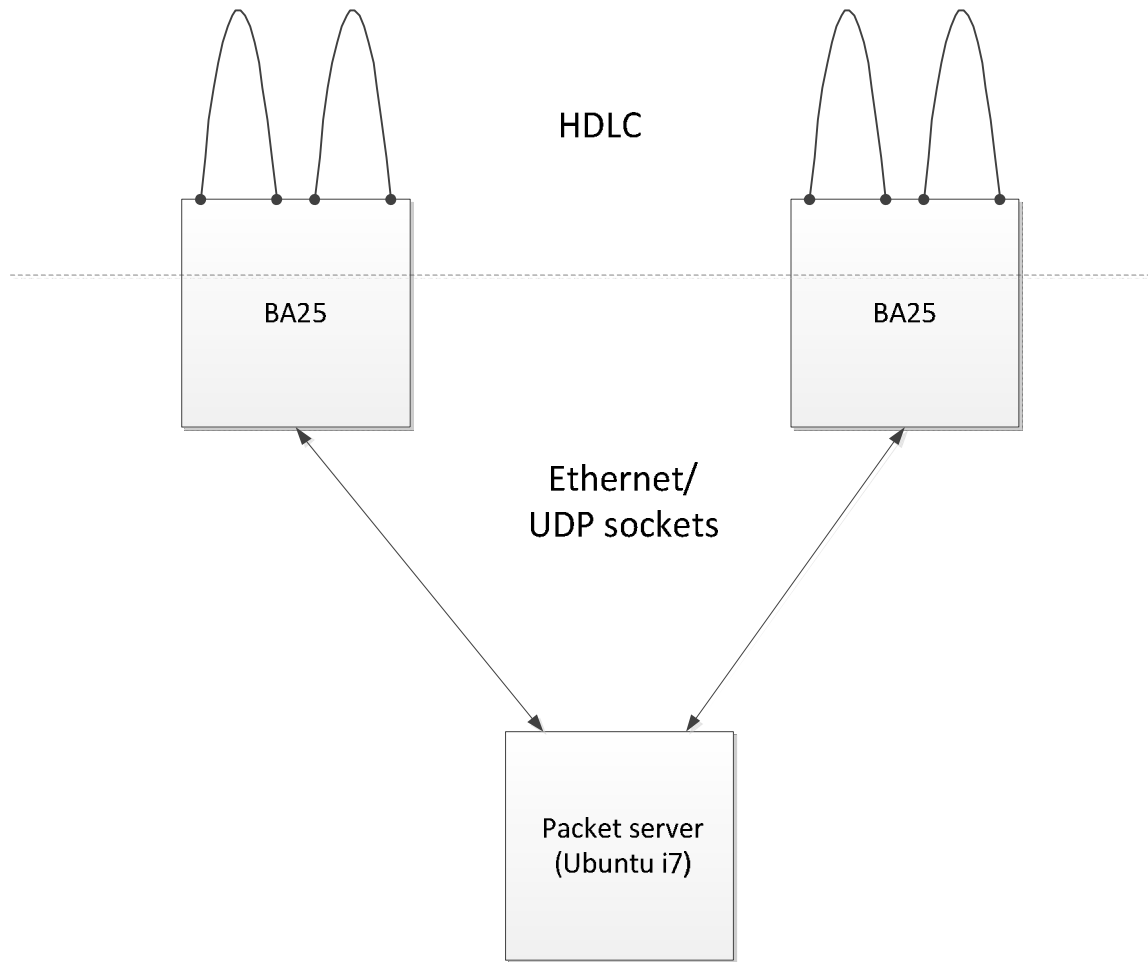
## Software Description

The Dynamic Engineering supplied SW consists of 3 applications. Two embedded applications, and a packet server which should be platform independent. However it has only been tested on an Ubuntu server (3.8.0-42 kernel, SMP).

The start\_hdlc application is invoked from a shell on the target platforms. The input parameters consist of the IP address of the packet server, and the number of channels to be exercised. Start\_hdlc spawns a process for each channel which invokes dyn\_io (de\_ioApp.c). The dyn\_io app basically functions as an Ethernet/HDLC bridge. The app transmits packets upon receipt of Tx packet requests from the packet server. Upon packet reception, the packet is forwarded to the packet server. All communication between clients and the server is via UDP sockets.

## Test configuration

The following diagram depicts the configuration utilized for system test. If channel connectivity is modified, modifications to the applications start\_hdlc and/or dyn\_io may need to be modified. For example, start\_hdlc assumes port 1 is connected to port 2, port 3 to port 4. The app sets odd ports to dce mode, even ports to dte.



## Installation

- 1) Copy the contents of the supplied thumb drive to a Linux directory.
- 2) All binary images will be resident in this BA25 directory.
- 3) No rebuild should be required unless source is modified.
- 4) Top-level directory contains top level make to rebuild GSC and Dynamic Engineering SW.
- 5) Individual make files maybe invoked directly in sub-directories.
- 6) The script setenv must be invoked (top-level) directory prior re-building any source.
- 7) Upon rebuilding embedded SW (Plx9056 driver, dyn\_io, or start\_hdlc), the binary must be copied to the remote target via rcp.

Example (dyn\_io)  
rcp dyn\_io [root@xxx.xxx.xxx.xxx:plx/dyn\\_io](mailto:root@xxx.xxx.xxx.xxx:plx/dyn_io)

## Directory layout

Dynamic Engineering Applications:

source: de\_Ba25/Examples/DynEng

binaries:

de\_server (packet server): de\_Ba25/Examples/DynEng

embedded apps: de\_Ba25/Examples/DynEng/App

GSC APIs:

source:

GscApi

library:

GscApi/Library

PlxSdk:

scripts: PlxSdk/Bin

driver source and binary:

de\_Ba25/PlxSdk/Linux/Driver

PlxAPIs:

source:

de\_Ba25/PlxSdk/Linux//PlxApi

library:

de\_Ba25/PlxSdk/Linux/PlxApi/Library

Linux kernel for target:

de\_Ba25/linux2.6.35

Note: This is provided so embedded applications can be built against appropriate kernel header files. Kernel can be rebuilt by invoking make in the linux2.6.35 directory.

Note: This directory must be extracted tar . xvf linux.tar

Tools:

de\_Ba25/tools

Contains power-pc tool chain.

Note: Directory must be extracted: tar . xvf tools.tar

## Serial Console

By default, Linux on the Xpedit CPU is auto-configured to retrieve its IP address from the DHCP server. The serial console may be utilized to determine the IP address obtained, or to assign a static IP address. A micro-DB-9 adapter (attached to front panel) and null modem cables are required. The serial port parameters are as follows: Baud rate 115200, 8 bits, 1 stop bit, no flow control.

Once the serial connection is established, login name is root, no password. After login, at the prompt enter: ifconfig, the following output will result:



```
eth0      Link encap:Ethernet  HWaddr c8:60:00:77:12:18
          inet addr:192.168.71.11  Bcast:192.168.71.255
Mask:255.255.255.0
          inet6 addr: fe80::ca60:ff:fe77:1218/64 Scope:Link
```

inet addr is the assigned IP address. This address is utilized for subsequent connections via ssh unless a static address will be assigned.

## Invocation parameters

In separate shells ssh into the target(s)

```
ssh . l root xxx.xxx.xxx.xxx (target IP)
```

```
login: root
```

Packet server:

```
cd Examples/DynEng
```

```
./de_server num channels (2 | 4 | 6 | 8) packet length
```

Note it is best to start packet server before invoking embedded apps.

Embedded app:

```
cd plx
```

```
./start_hdlc xxx.xxx.xxx.xxx (server IP) num channels.
```

When shutting down targets, it is recommended to issue the following command rather than just powering down:

```
shutdown . h now
```

## Warranty and Repair

Please refer to the warranty page on our website for the current warranty offered and options.

<http://www.dyneng.com/warranty.html>

## Service Policy

Before returning a product for repair, verify as well as possible that the suspected unit is at fault. Then call the Customer Service Department for a RETURN MATERIAL AUTHORIZATION (RMA) number. Carefully package the unit, in the original shipping carton if this is available, and ship prepaid and insured with the RMA number clearly written on the outside of the package. Include a return address and the telephone number of a technical contact. For out-of-warranty repairs, a purchase order for repair charges must accompany the return. Dynamic Engineering will not be responsible for damages due to improper packaging of returned items. For service on Dynamic Engineering Products not purchased directly from Dynamic Engineering contact your reseller. Products returned to Dynamic Engineering for repair by other than the original customer will be treated as out-of-warranty.

### Out of Warranty Repairs

Out of warranty repairs will be billed on a material and labor basis. Customer approval will be obtained before repairing any item if the repair charges will exceed one half of the quantity one list price for that unit. Return transportation and insurance will be billed as part of the repair and is in addition to the minimum charge.

### For Service Contact:

Customer Service Department  
Dynamic Engineering  
150 DuBois St. Suite C  
Santa Cruz, CA 95060  
831-457-8891  
831-457-4793 fax  
InterNet Address [support@dyneng.com](mailto:support@dyneng.com)

