DoGav Systems

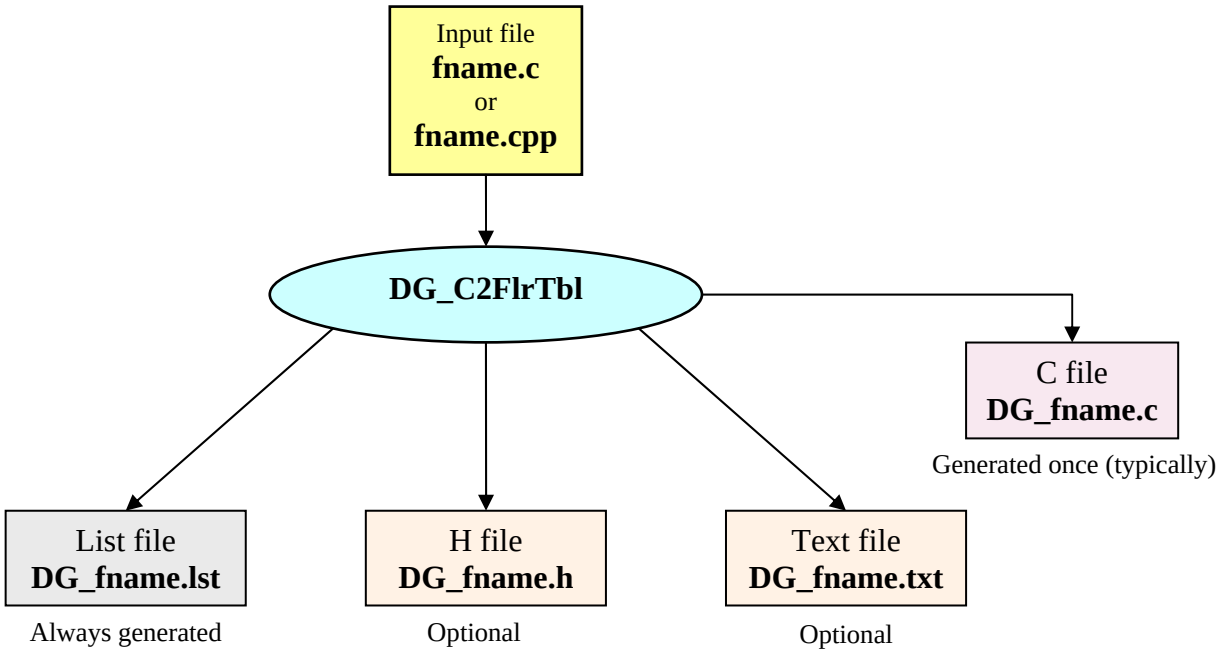
eTSEC Receive Queue Filer Compiler

Data Sheet

19 September 2006

PRODUCT DESCRIPTION

Enhanced Triple-Speed Ethernet Controller (eTSEC) Receive Queue Filer Compiler, or DG_C2FlrTbl**,** is a tool that provides an intuitive and easy to use solution for making use of the eTSEC Receive Queue Filer. DG_C2FlrTbl receives as its input a C-like program and generates an h file that contains two arrays that can be used to configure the eTSEC Receive Queue Filer Table. In addition, the tool can also generate a C-language function that can be used by the user application to install the two generated arrays into the eTSEC entries - one array for control and one for property entries. Furthermore, the compiler also generates an extensive report highlighting any errors in the c-input file (syntax, incorrect key-words, etc.).



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KEY FEATURES

- A stand-alone compiler developed by DoGav Systems
- Accepts C-like statements and generates a corresponding Single C function
- Generated function can be called during device initialization to install the corresponding binary image into the eTSEC Filter Machine
- Compiler accepts keywords such as layer4_type, TCP, SRC_PRT, TOS, etc.
- Supports MPC8548 & MPC8641
- Available from September 2006

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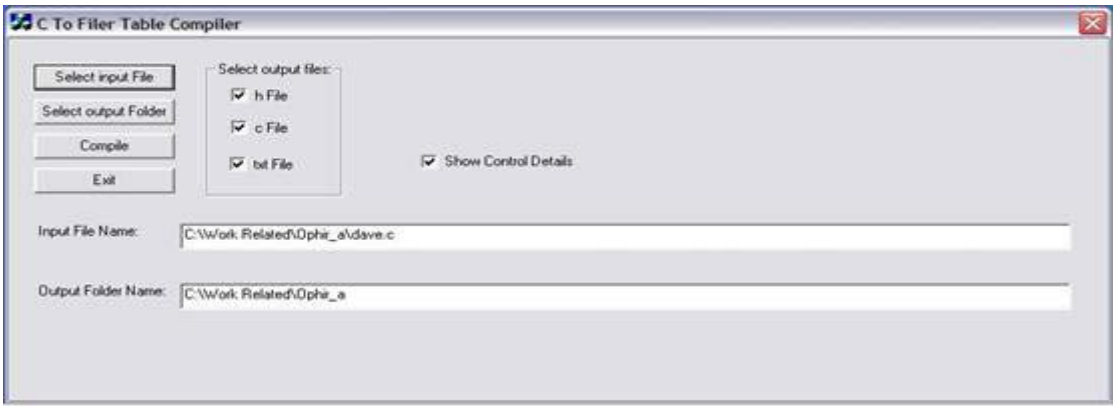
COMPILATION EXAMPLE

This section illustrates a full example of using the DG_C2FlrTbl tool. Below is the content of the input file *dave.c*:

```
if (L4P == UDP)
 {// 1st cluster
   switch (SPT)  // 1st cluster
   {
     case 2049:file_in_queue(5); break;
     case 520:file_in_queue(7);
     case 69:file_in_queue(6); break;
     default:file_in_queue(4); break;
   }
 }   /* L4P == UDP) */
 else if(L4P == TCP)
 { // 2nd cluster
   if (SPT >= 20 && SPT < 22)
         file_in_queue(2);
   else
     if (SPT == 23)
          file_in_queue(3);
     else file_in_queue(1);
 } // if (L4P == TCP)
 else file_in_queue(0);  // default = 3rd cluster
```

Input File (dave.c)

Below is the tool's user interface.



Selecting Parameters for Compilation

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After invoking the “Compile” tab, three files are created. They are shown below.

```
#ifndef DG_DAVE_H
#define DG_DAVE_H

/* prototype */
void DG_Install_eTSEC_TBL(unsigned long etsec_tbl_base);
/* where etsec_tbl_base is the eTSEC base absolute
address (e.g. 0x20024000) */

#endif    /*  DG_DAVE_H   */
```

DG_dave.h file

Ctrl	Property	CLE	REJ	AND	QUEUE	CMP	PID
0000028b	00000011	1	0	1	000000	00	1011
0000140f	00000801	0	0	0	000101	00	1111
00001c0f	00000208	0	0	0	000111	00	1111
0000180f	00000045	0	0	0	000110	00	1111
00001220	00000000	1	0	0	000100	01	0000
0000028b	00000006	1	0	1	000000	00	1011
000000af	00000014	0	0	1	000000	01	1111
0000086f	00000016	0	0	0	000010	11	1111
00000c0f	00000017	0	0	0	000011	00	1111
00000620	00000000	1	0	0	000001	01	0000
00000020	00000000	0	0	0	000000	01	0000

DG_dave.txt file

```
/*********************************************************
***
 C-program to install control and property words into
eTSEC - Receive Queue Filter Table

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*********************************************************
**/
```


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```
#include "DG_dave.h"

unsigned long eTSEC_contlol[] =
{
0x0000028b,0x0000140f,0x00001c0f,0x0000180f,0x00001220,0x
0000028b,0x000000af,0x0000086f,0x00000c0f,0x00000620,0x00
000020
};
unsigned long eTSEC_property[] =
{
0x00000011,0x00000801,0x00000208,0x00000045,0x00000000,0x
00000006,0x00000014,0x00000016,0x00000017,0x00000000,0x00
000000
};

typedef struct
{
   char  rsrv[0x334];
   unsigned long RQFAR;
   unsigned long RQFCR;
   unsigned long RQPROP;
} DG_RQFT_S ;

void DG_Install_eTSEC_TBL
(
    unsigned long etsec_tbl_base
)
{
  DG_RQFT_S *pRQFT;
  unsigned long *pCTRL, *pPROP;
  int  i, size;

  pCTRL = &eTSEC_contlol[0];
  pPROP = &eTSEC_property[0];
  pRQFT = (DG_RQFT_S *) etsec_tbl_base;

  size = sizeof(eTSEC_contlol)/sizeof(unsigned long);


  for(i=0; i< size; i++)
  {
```


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```
     pRQFT->RQFAR  = (unsigned long) i;  /* set entry
address */
     pRQFT->RQFCR  = *pCTRL++ ;          /* control word
*/
     pRQFT->RQPROP = *pPROP++;           /* property word
*/
  }
}
```

DG_dave.c file

ABOUT DOGAV SYSTEMS

DoGav Systems is a leading provider of software and hardware consultancy and training services. It specializes in Freescale's processors, in particular the PowerQUICC family of communication processors. It has a proven track record of over 20 years supporting Freescale customers in developing market-leading products for the communications equipment market.

DoGav Systems is Freescale's most experienced and active microcode developer. Since receiving its license in 2000, it has developed numerous customized microcode packages for both small and large Freescale customers. These packages are now successfully deployed in commercial products. In addition, DoGav Systems also offers more than 30 off-the-shelf microcode products for the PowerQUICC I, PowerQUICC II, PowerQUICC III and PowerQUICC II Pro processors.

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