Hardware	Inputs	Outputs	Synthesis	Trend
			LUTs	LUTs
	2	4		0.5n
	3	8		0.5n
	4	16		0.5n
	5	32	16	0.5n
	6	64	64	n
	7	128	68	0.5n
	8	256	136	0.5n
C-t-1101D	9	512	528	n
Gate Level 2LD (NGEN)	10	1024	1056	n
, ,	11	2048	2112	n
	12	4096	2176	0.5n
	13	8192	8264	n
	14	16384	8320	0.5n
	15	32768	16512	0.5n
	16	65536	65664	n
	17	131072	65924	
	18	262144	161704	
	2	4		0.5n
	3	8		0.5n
	4	16		
1 1 1 1 1 1 1				0.5n
	5	32		0.5n
	6	64	64	
	7	128	68	
	8	256	136	0.5n
Generalized Function	9	512	528	n
Based	10	1024	1056	n
Decoders	11	2048	2112	n
	12	4096	2176	0.5n
	13	8192	8264	n
	14	16384	16524	n
	15	32768	32916	n
	16	65536	65864	n
	17	131072	131728	n
	18	262144	132128	
	2	4		0.5n
	3	8	4	
	4	16		0.5n
	5			0.5n
		32		
	6	64	64	
	7	128		0.5n
	8	256		0.5n
Generalized	9	512	528	
Loop Based Decoders	10	1024	682	0.5n
pecoders	11	2048	2188	n
	12	4096	2974	0.75n
	13	8192	8361	n
	14	16384	19092	1.165
	15	32768	20612	0.629
	16	65536	47746 [1]	0.729
	17	131072		
	18	262144		
	3	8	4	0.5n
	4	16		0.5n
	5	32	32	
1 1 1 1		64		
1 0 0 1	6		66	
1 1 1 1 1 1 1	7	128		0.5n
1	8	256		0.5n
Generalized	9	512	528	
Tree Based	10	1024	1044	
Decoders (2, 4)	11	2048	2072	
· ·/	12	4096	4128	n
	13	8192	8224	n
	14	16384	8256	0.5n
	15	32768	32906	n
		65536	66312	

Hardware	Inputs	Outputs	Synthesis	Trend
			LUTs	LUTs
	17	131072	132616	
	18	262144	265256	<u> </u>
	5	16 32	32	0.5n
	6	52 64		0.5n
	7	128	132	
	8	256		0.5n
	9	512	528	
eneralized	10	1024	1044	
Tree Based	11	2048	2072	
Decoders (2, 8)	12	4096	4128	
	13	8192	8224	n
	14	16384	8256	0.5n
	15	32768	32906	n
	16	65536	66312	n
	17	131072	132616	n
	18	262144	265256	n
	5	32	32	n
	6	64	34	0.5n
	7	128	68	0.5n
	8	256	136	0.5n
	9	512		0.5n
ieneralized	10	1024	1044	
Tree Based	11	2048	1056	
Decoders (2, 16)	12	4096	4128	
, , ,	13	8192	8240	
	14	16384	8240	
	15	32768	32914	
	16	65536	65864	
	17	131072	131720	
	18	262144	264232	
	6 7	64 128	66 132	
	8	256	264	
	9	512	528	
	10	1024	1044	
eneralized	11	2048	1072	
Free Based	12	4096	2096	
Decoders (2, 32)	13	8192	8736	
	14	16384	8256	0.5n
	15	32768	32906	n
	16	65536	66308	n
	17	131072	132616	
	18	262144	265248	
	3	8	4	0.5n
	4	16	8	0.5n
	5	32	32	n
	6	64	66	n
	7	128		0.5n
	8	256		0.5n
ieneralized	9	512	528	
Free Based Decoders	10	1024	1044	
(4, 4)	11	2048	2072	
-	12	4096	4116	
	13	8192	4144	
	14	16384	16472	
	15	32768	32964	
	16	65536	66000	
	17	131072	131872	
	18	262144	266320	
	4	16		0.5n
	5	32 64	32 66	
	6 7	128	66 132	
	. '	128	132	["

Hardware	Inputs	Outputs	Synthesis	Trend
			LUTs	LUTs
C	9	512	528	
Generalized Tree Based	10	1024	1044	
Decoders (4, 8)	11	2048	2072	
	12	4096	4116	
	13 14	8192	8216	
	15	16384 32768	16472 32932	
	16	65536	66000	
	17	131072	131736	
	18	262144	266320	
	5	32	32	n
	6	64		0.5n
	7	128	132	n
	8	256		0.5n
	9	512	528	
	10	1024	1044	n
Generalized Tree Based	11	2048	2072	n
Decoders	12	4096	4112	n
(4, 16)	13	8192	8216	n
	14	16384	8256	
	15	32768	32932	n
	16	65536	66832	n
	17	131072	131736	n
	18	262144	267344	n
	6	64	34	0.5n
	7	128	132	n
	8	256	136	0.5n
	9	512	528	n
	10	1024	1044	n
Generalized	11	2048	1072	0.5n
Tree Based Decoders	12	4096	4112	n
(4, 32)	13	8192	8216	n
	14	16384	8256	0.5n
	15	32768	32868	n
	16	65536	66832	n
	17	131072	133392	n
	18	262144	267344	n
	7	128	136	n
	8	256	264	n
	9	512	288	0.5n
	10	1024	1044	n
Generalized	11	2048	2072	n
Tree Based	12	4096	2312	
Decoders (8, 4)	13	8192	8224	n
1-7 17	14	16384	16912	
	15	32768	18468	
	16	65536	65924	
	17	131072	132398	
	18	262144	147752	
	7	128	136	
	8	256		0.5n
	9	512		0.5n
	10	1024	1040	
Generalized	11	2048	2068	
Tree Based Decoders	12	4096	2312	
Decoders (8, 8)	13	8192	8220	
	14	16384	16416	
	15	32768	18500	
	16	65536	65860	
	17	131072	131877	
	18	262144	148004	
	7	128		0.5n
	8	256		0.5n
	9	512	288	0.5n

Hardware	Inputs	Outputs	Synthesis	Trend
naiuwaie	inputs	Outputs	LUTs	LUTs
Generalized	11	2048	2068	n
Tree Based	12	4096	4124	
Decoders (8, 16)	13	8192	8240	
	14	16384	16416	
	15	32768	32883	
	16	65536	66820	
	17 18	131072 262144	131877	
	7	128	263979	0.5n
	8	256	264	
	9	512		0.5n
	10	1024	1044	
Committeed	11	2048	1064	0.5n
Generalized Tree Based	12	4096	4124	n
Decoders	13	8192	8240	n
(8, 32)	14	16384	16432	n
	15	32768	32883	n
	16	65536	66820	n
	17	131072	84524	0.65n
	18	262144	263979	n
	7	128	68	0.5n
	8	256	264	n
	9	512	288	0.5n
	10	1024	1044	
Generalized	11	2048	1064	
Tree Based Decoders	12	4096	2312	
(8, 64)	13	8192	8240	
	14	16384	16432	
	15	32768	18500	
	16	65536	66820	
	17 18	131072 262144	84524 148004	
	7	128		0.5n
	8	256		0.5n
	9	512	528	
	10	1024	1044	
C	11	2048	2084	n
Generalized Tree Based	12	4096	4136	n
Decoders	13	8192	4624	0.5n
(16, 4)	14	16384	15427	< n
	15	32768	33321	n
	16	65536	68105	n
	17	131072	73872	0.5n
	18	262144	266920	n
	7	128	132	
	8	256		0.5n
	9	512	528	
	10	1024	1044	
Generalized	11	2048	2072	
Tree Based Decoders	12	4096	2096	
(16, 8)	13 14	8192 16384	4624 15427	
	15	32768	33094	
	16	65536	35337	
	17	131072	73872	
	18	262144	266920	
	8	256		0.5n
	9	512	528	
	10	1024	1044	
	11	2048	1056	
Generalized	12	4096	2096	0.5n
Tree Based Decoders	13	8192	8228	n
(16, 16)	14	16384	8256	0.5n
	15	32768	16664	0.5n
	16	65536	35336	0.5n

Hardware	Inputs	Outputs	Synthesis	Trend
	17	131072	<i>LUTs</i> 136456	LUTs n
	18	262144	235496	
	9	512	528	
	10	1024	1044	n
	11	2048	1056	0.5n
Generalized	12	4096	2096	0.5n
Tree Based	13	8192	8228	n
Decoders	14	16384	8256	0.5n
(16, 32)	15	32768	16664	0.5n
(10, 32)	16	65536	37128	0.5n
	17	131072	136456	n
	18	262144	235496	< n
	10	1024	1044	n
	11	2048	1056	0.5n
	12	4096	2096	0.5n
Generalized Tree Based	13	8192	4624	0.5n
Decoders	14	16384	8256	0.5n
(16, 64)	15	32768	16664	0.5n
	16	65536	37128	0.5n
	17	131072		> 0.5n
	18	262144	235496	< n
	7	128	132	
	8	256		0.5n
	9	512		0.5n
	10	1024	1044	
Generalized	11	2048	1088	
Tree Based	12	4096	4136	
Decoders (32, 4)	13	8192	8236	
	14	16384	10384	
	15	32768	33224	
	16	65536	66656	
	17	131072	136224	
	18	262144	275488	
	8	256		0.5n
	9	512		0.5n
	10 11	1024 2048	1044 1088	
Generalized	12	4096	4136	
Tree Based	13	8192	8224	
Decoders (32, 8)	14	16384	10384	
(32, 0)	15	32768	33224	
	16	65536	66206	
	17	131072		> 0.5n
	18	262144	271392	
	9	512		0.5n
	10	1024	1044	
	11	2048	1088	
	12	4096	4136	
Generalized Tree Based	13	8192	8224	
Decoders	14	16384	16448	
(32, 16)	15	32768	29961	
	16	65536	33376	
	17	131072		> 0.5n
	18	262144	271392	
	10	1024	1044	_
	11	2048	1088	
	12	4096	4136	
Generalized	13	8192	4160	
Tree Based	14	16384	16448	
Decoders (32, 32)	15	32768	26372	
. , =/	16	65536	33376	
	17	131072		> 0.5n
	18	262144	148512	1
		2048	2076	
	11	20 <del>4</del> 0		

Hardware	Inputs	Outputs	Synthesis	Trend
		•	LUTs	LUTs
Generalized	13	8192	4160	
Tree Based Decoders	14	16384		> 0.5n
(32, 64)	15 16	32768 65536	29572 33376	
	17	131072		> 0.5n
	18	262144	148512	
	8	256	264	
	9	512	528	
	10	1024	1044	n
	11	2048	2084	n
Generalized	12	4096	2084	0.5n
Tree Based Decoders	13	8192	8272	n
(64, 4)	14	16384	16432	n
	15	32768	32906	
	16	65536	66630	
	17	131072	133318 [2]	
	18	262144	272450	
	9	512	528	
	10 11	1024 2048	1044	
	12	4096	2084 2084	
Generalized Tree Based	13	8192	8272	
Decoders	14	16384	16432	
(64, 8)	15	32768	32906	
	16	65536	66630	
	17	131072	132434	
	18	262144	141378	
	10	1024	1044	n
	11	2048	2084	n
	12	4096	2084	0.5n
Generalized	13	8192	8272	n
Tree Based Decoders	14	16384	16432	n
(64, 16)	15	32768	32906	n
	16	65536	62923	
	17	131072	67618	
	18	262144	141346	
	11	2048	2084	
	12	4096 8192	2084	
Generalized	13 14	16384	8272 16432	
Tree Based Decoders	15	32768	32906	
(64, 32)	16	65536	62923	
	17	131072	67618	
	18	262144	148514	
	12	4096	2084	
	13	8192	8272	n
Generalized	14	16384	16432	n
Tree Based Decoders	15	32768	32906	n
(64, 64)	16	65536	66095	n
	17	131072	67618	0.5n
	18	262144	148514	
	12	4096	2084	
Generalized Tree Based Decoders (128, 16)	13	8192	4136	
	14	16384	16412	
	15	32768	22238	
	16	65536	41539	
	17	131072	133764	
	18	262144	264587	
	13	8192	4136	
Generalized	14 15	16384 32768	16412 22238	
Tree Based Decoders	16	65536	38161	
	7.0	00000	20101	- 11
(128, 32)	17	131072	132/05	n
	17 18	131072 262144	132495 281220	

Hardware	Inputs	Outputs	Synthesis	Trend
			LUTs	LUTs
Generalized	14	16384	16412	
Tree Based Decoders	15	32768	22238	
(128, 64)	16	65536 131072		> 0.5n
	17	262144	132495	
	18 14		281220	
Generalized Tree Based Decoders (128, 128)	15	16384 32768	17028 22256	
	16	65536		> 0.5n
	17	131072	129845	
(128, 128)	18	262144	281220	
	9	512	528	
	10	1024	1056	n
	11	2048	2112	n
	12	4096	2176	0.5n
Multi-Level	13	8192	8264	n
Decoders (3GO) [3]	14	16384	16524	n
, ,,,,	15	32768	33064	n
	16	65536	65864	n
	17	131072 [4	131728	n
	18	262144 [5	132138	0.5n
	9	512	528	n
	10	1024	1056	n
	11	2048	2112	n
	12	4096	2176	0.5n
Multi-Level Decoders	13	8192	8264	n
(3FO) [6]	14	16384	16524	n
	15	32768	33064	n
	16	65536	65864	n
	17	131072 [7	131728	n
	18	262144	132138 [8]	0.5n
	9	512	528	n
	10	1024	1040	n
	11	2048	2072	n
M. Int.	12	4096	4128	n
Multi-Level Decoders	13	8192	8240	n
(3GA) [9]	14	16384	16448	
	15	32768	16480	
	16	65536	67648	
	17	131072	65792	
	18	262144	132140	
	9	512	528	
	10	1024	1040	
	11	2048	2072	
Multi-Level	12	4096	4128	
Decoders	13	8192	8240	
(3FA) [10]	14 15	16384 32768	16448 16480	
	16	65536	67648	
	17	131072	65776	
	18	262144	132140	
	9	512	528	
	10	1024	1056	
	11	2048	2112	
	12	4096	2176	
Multi-Level	13	8192	8264	
Decoders (4GO) [11]	14	16384	16524	
(4GO) [11]	15	32768	33064	
	16	65536	65864	
	17	131072	131728	
	18	262144	144853	
	9	512	528	
	10	1024	1056	n
	11	2048	2112	n
	12	4096	2176	0.511

Hardware	Inputs	Outputs	Synthesis	Trend
Decoders	14	16384	<i>LUTs</i> 16524	LUTs
(4FO) [12]	14	32768	33064	
	16	65536	65864	
	17	131072	131728	
	18	262144	132128	
	9	512	524	n
	10	1024	1040	n
	11	2048	2112	n
	12	4096	2120	0.5n
Multi-Level Decoders	13	8192	8224	n
(4GA) [13]	14	16384	16424	n
	15	32768	32816	
	16	65536		> 0.5n
	17	131072		> 0.5n
	18	262144	147520	
	9	512	524	
	10	1024	1040	
	11	2048 4096	2112 2120	
Multi-Level	13	8192	8224	
Decoders	14	16384	16424	
(4FA) [14]	15	32768	32816	
	16	65536		> 0.5n
	17	131072		> 0.5n
	18	262144	147520	
	9	512	528	
	10	1024	1056	
	11	2048	2112	n
	12	4096		
Multi-Level	13	8192		
Decoders (5FO) [15]	14	16384		
	15	32768		
	16	65536		
	17	131072		
	18	262144	144739	> 0.5n
	9	512		
	10	1024		
	11	2048		
Multi-Level	12	4096		
Decoders	13	8192		
(5FA) [16]	14	16384		
	15 16	32768 65536		
	16	131072		
	18	262144		
	10	_02177		

Hardware	Inputs	Outputs	Synthesis	Trend
пагимаге	inputs	outputs	LUTs	LUTs
		-		

Hardware	Inputs	Outputs	Synthesis	Trend
Hardware	Inputs	Outputs	LUTs	LUTs
		-		
		I		

Hardware	Inputs	Outputs	Synthesis	Trend	
naruware	inputs	Outputs	LUTs	LUTs	
		-			

Hardware	Innute	Outputs	Synthesis	Trend
naiuware	inputs	Outputs	LUTs	LUTs

```
[1] ~52 min synth time
[2] took like 22 minutes, why?
[3] Codes:
First number: [G max lvls]
Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)
Third letter: A (cascaded) / O (composed)
[4] ~40 min synth time
[5] ~40 min synth time
[6] Codes:
First number: [G max lvls]
Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)
Third letter: A (cascaded) / O (composed)
[7] ~35 min synth time
[8] may want to verify this was 138 and not 128
[9] Codes:
First number: [G max IvIs]
Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)
Third letter: A (cascaded) / O (composed)
[10] Codes:
First number: [G_max_lvls]
Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)
Third letter: A (cascaded) / O (composed)
[11] Codes:
First number: [G max_lvls]
Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)
```

Third letter: A (cascaded) / O (composed)

[12] Codes:

First number: [G max lvls]

Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)

Third letter: A (cascaded) / O (composed)

[13] Codes:

First number: [G\_max\_lvls]

Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)

Third letter: A (cascaded) / O (composed)

[14] Codes:

First number: [G\_max\_lvls]

Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)

Third letter: A (cascaded) / O (composed)

[15] Codes:

First number: [G\_max\_lvls]

Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)

Third letter: A (cascaded) / O (composed)

[16] Codes:

First number: [G max\_lvls]

Second letter: G (gate-level enabled) / F (function-based, gate-level disabled)

Third letter: A (cascaded) / O (composed)