![IDT] Fanout Buffers

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Part #	# of Outputs	Output Type	# of Inputs	Max Output Frequency (MHz)	Input Type	Output Voltage Level	Output Skew	Additive Phase Noise	Package Type
854110I	10	LVDS	2	200	Differential	2.5, 3.3	30	0.29	32-TQFP
5T907	10	LVCMOS, HSTL	1	250	Differential	2.5, 1.8	25	n/a	48-TSSOP
5T9310	10	LVDS	2	1000	Differential	2.5, 3.3	25	n/a	40-VFQFPN
853S6111I	10	LVPECL	2	2700	Differential	2.5, 3.3	35	0.12	32-VFQFPN
854S036	10	LVDS	2	2000	Differential	3.3	100	0.06	32-VFQFPN
49FCT20805	10	LVCMOS	2	0-166	LVCMOS	2.5	200	n/a	20-SSOP, 20-QSOP, 20-VFQFPN
49FCT3805B	10	LVCMOS	2	0-166	LVCMOS	3.3, 5	500	n/a	20-SSOP, 20-QSOP, 20-SOIC
49FCT3805E	10	LVCMOS	2	0-166	LVCMOS	3.3, 5	500	n/a	20-SSOP, 20-QSOP
49FCT805CT	10	LVCMOS	2	0-166	LVCMOS	3.3, 5	700	n/a	20-SSOP, 20-QSOP, 20-SOIC
49FCT806A	10	LVCMOS	2	0-166	LVCMOS	3.3, 5	700	n/a	20-SSOP, 20-SOIC
5V2310	10	LVCMOS	2	0-200	LVCMOS	2.5, 3.3	100	n/a	24-TSSOP, 20-VFQFPN
74FCT20807	10	LVCMOS	1	0-166	LVCMOS	2.5	700	n/a	20-TSSOP, 20-QSOP
74FCT3807E	10	LVCMOS	1	0-133	LVCMOS	3.3	100	n/a	20-SSOP
74FCT807C	10	LVCMOS	1	0-100	LVCMOS	5	350	n/a	20-SSOP, 20-QSOP, 20-SOIC
LV810	10	LVCMOS	1	1-133	1.5V LVCMOS, 2.5V LVCMOS	1,5,2.5	200	n/a	20-SSOP, 20-QSOP
8312I	12	LVCMOS	1	250	LVCMOS	2.5, 3.3 ,1.8	160	0.04	32-TQFP
83948I	12	LVCMOS	2	250	LVCMOS, Differential	3.3	350	n/a	32-TQFP
83948I-147	12	LVCMOS	2	350	LVCMOS, Differential	2.5, 3.3	160	0.14	32-TQFP
853S12I	12	LVPECL	1	1500	Differential	2.5, 3.3	50	0.06	32-VFQFPN
9DB1233	12	HCSL	1	5 - 166	HSCL	3.3	50	50	64-TSSOP
8316	16	LVCMOS	1	150	LVCMOS	1.2	380	n/a	32-VFQFPN
8343-01	16	LVCMOS	1	200	LVCMOS	2.5, 3.3	250	n/a	32-TQFP
8501	16	HCSL	1	500	Differential	2.5, 3.3	100	n/a	48-TQFP
8516I	16	LVDS	1	700	Differential	2.5, 3.3	90	0.148	48-TQFP
8530I-01	16	LVPECL	1	500	Differential	3.3	75	0.162	48-TQFP
5T9316	16	LVDS	2	1000	LVCMOS, Differential	2.5, 3.3	25	n/a	52-VFQFPN
MK74CB218B	16	LVCMOS	2	0-200	3.3V TTL	3.3	100	n/a	28-QSOP
8532AY-01	17	LVPECL	1	500	LVCMOS, Differential	3.3	50	n/a	52-TQFP
83918I	18	LVCMOS	1	250	LVCMOS, Crystal	2.5, 3.3, 1.8	50	0.4	32-TQFP
83940I-01	18	LVCMOS	2	250	LVCMOS, Differential	2.5, 3.3	150	0.1	32-TQFP
9DB1933	19	HCSL	1	5 - 166	HSCL	3.3	50	50	72-MLF
851021	21	HCSL	1	250	Differential	2.5, 3.3	395	0.2	64-TQFP
8534-01	22	LVPECL	2	500	Differential	3.3	100	0.4	64-TQFP
8344-01	24	LVCMOS	2	250	Differential	2.5, 3.3	200	0.21	48-TQFP

![IDT] Integrated Device Technology

Fanout Buffers

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FUNCTIONS

- Devices with up to 27 outputs
- Single-ended or differential outputs such as LVPECL, LVDS, HSTL, SSTL and CML available
- PCIe compliant HCSL outputs
- Differential output frequencies up to 3.2 GHz and single ended LVCMOS outputs for frequencies up to 350 MHz

BENEFITS/FEATURES

- Extremely low additive phase noise
- Full differential internal architecture
- Wide variety of output styles
- Crystal fan-out buffers have an internal oscillator
- <100 ps output to output skew
- Industrial temperature ranges available
- Operating voltages from 1.2V to 5V
- Some buffers are available with mixed output signaling.
- Use 1.8V, 2.5V or 3.3V supplies
- Available in commercial and industrial temperature ranges.
- Well suited for use in consumer, computing and embedded applications as well as networking, communications and high-end computing systems.

Designed for Tight Timing Budgets, Optimized for Low Skew, Delay and Jitter
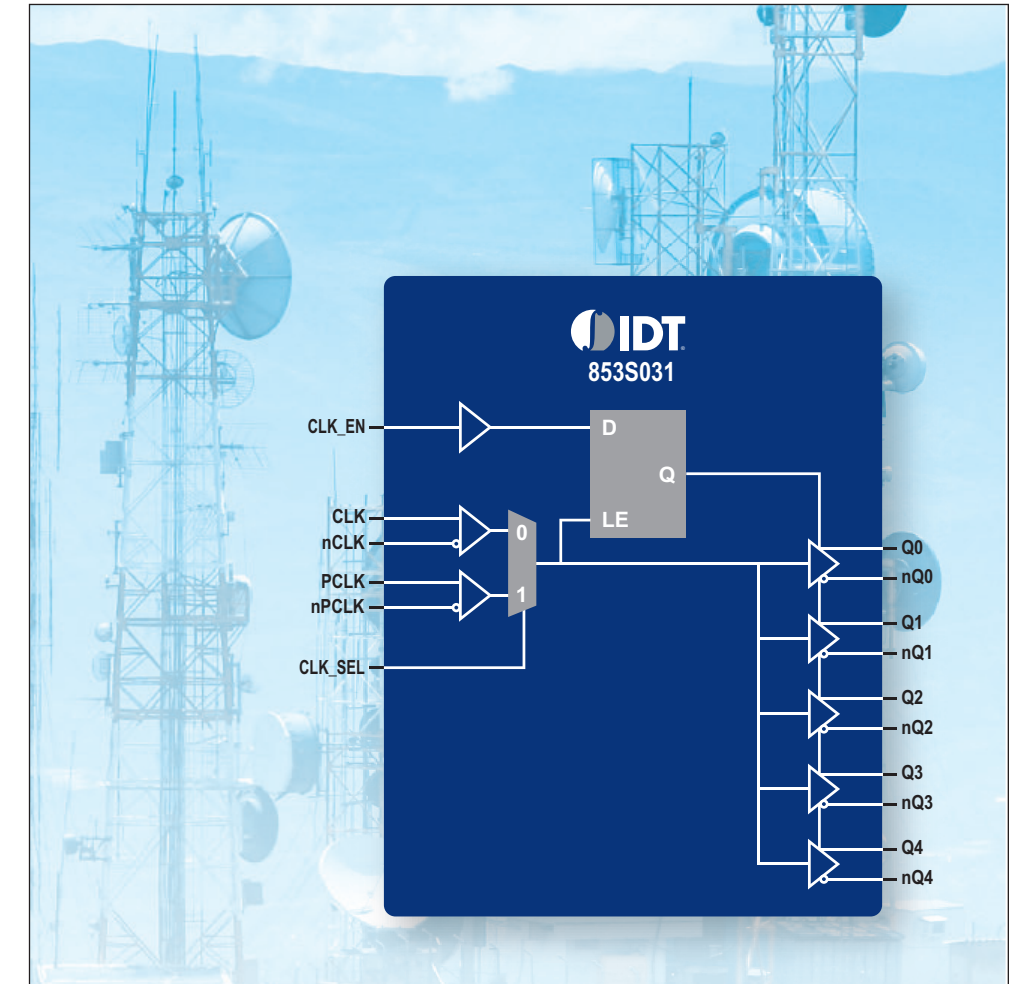
Typical Differential fan-out buffer

Device Overview

IDT offers the largest portfolio of off-the shelf fan-out buffers in the industry. Fan-out buffers are a useful building block of many clock trees, providing signal buffering and multiple copies of the input signal. Single output buffers are useful for translating a clock from one signaling standard to another (e.g. LVCMOS-in to LVPECL-out). Some devices have an integrated crystal oscillator, requiring only a low cost external fundamental-mode quartz crystal. The integrated oscillator provides an extremely low phase noise reference clock to drive jitter-sensitive devices such as the clock inputs of PHYs. Some IDT fan-out buffers feature fully differential internal architecture—even devices with single-ended I/Os—reducing jitter caused by inherent common-mode noise rejection and improving output skew. The differential circuitry is constant-current and therefore injects less noise into system power supplies than single-ended solutions, reducing EMI compliance concerns.

Part #	# of Outputs	Output Type	# of Inputs	Max Output Frequency (MHz)	Input Type	Output Voltage Level	Output Skew	Additive Phase Noise	Package Type
830S21I-01	1	LVCMOS	1	350	Differential	2.5, 3.3	n/a	0.11	8-SOIC
508	1	LVCMOS	1	0-250	PECL	2.5, 3.3		n/a	8-SOIC
557G-08	1	HSCL	2	1-200	HSCL	0.8 - 3.3		n/a	16-TSSOP
8302I	2	LVCMOS	1	200	LVCMOS	2.5, 3.3	40	n/a	8-SOIC
8302-01	2	LVCMOS	1	250	LVCMOS	2.5, 3.3	n/a	n/a	8-SOIC
83026I-01	2	LVCMOS	1	350	Differential	2.5, 3.3, 1.8	15	0.03	8-SOIC, 8-TSSOP
85102I	2	HCSL	2	500	LVCMOS, Differential	2.5, 3.3	65	0.14	64-TQFP
85222-02	2	HSTL	1	350	LVCMOS	2.5, 3.3	25	n/a	8-SOIC
85311I	2	LVPECL	1	1000	Differential	2.5, 3.3	20	0.14	8-SOIC
85322	2	LVPECL	2	267	LVCMOS	2.5, 3.3	n/a	n/a	8-SOIC
85411I	2	LVDS	1	650	Differential	2.5, 3.3	25	0.05	8-SOIC
85211BI-03	2	HSTL	1	700	Differential	1.8	30	n/a	8-SOIC
854S712I	2	LVDS	1	3000	Differential	2.5, 3.3	10	0.08	16-VFQFPN
858S011I	2	CML	1	1500	Differential	2.5, 3.3	25	0.04	16-VFQFPN
74FCT38072	2	LVCMOS	1	0-166	LVCMOS	3.3	100	n/a	8-SOIC
9DB233	2	HCSL	1	5 - 166	HSCL	3.3	50	50	20-SSOP
8305I	4	LVCMOS	2	350	LVCMOS, Differential	2.5, 3.3 ,1.8	45	0.04	16-TSSOP
8523	4	HSTL	2	650	Differential	2.5, 3.3	30	0.08	20-TSSOP
8523I-03	4	HSTL	2	650	Differential	1.8	50	n/a	20-TSSOP
8525	4	HSTL	2	266	LVCMOS	1.8	35	n/a	20-TSSOP
8533I-01	4	LVPECL	2	650	Differential	3.3	30	0.06	20-TSSOP
8535I-31	4	LVPECL	1	266	LVCMOS	3.3	30	0.05	20-TSSOP
8545I-02	4	LVDS	2	650	LVCMOS	2.5, 3.3	40	0.13	20-TSSOP
83904I-02	4	LVCMOS	1	200	LVCMOS	2.5, 3.3 ,1.8	40	0.16	16-TSSOP
85104I	4	HCSL	2	500	LVCMOS, Differential	2.5, 3.3	100	0.22	20-TSSOP
830154I-08	4	LVCMOS	1	160	LVCMOS	2.5, 3.3, 1.8, 1.5	250	0.09	8-SOIC, 8-TSSOP
854104I	4	LVDS	1	700	Differential	2.5, 3.3	50	0.232	8-SOIC, 8-TSSOP
854105	4	LVDS	1	250	LVCMOS	2.5, 3.3	55	0.16	16-TSSOP
853S314I	4	LVPECL	2	2700	Differential	2.5, 3.3	50	0.14	20-TSSOP
854S204I	4	LVPECL / LVDS	2	3000	Differential	2.5, 3.3	15	0.15	16-TSSOP
8S89831I	4	LVPECL	1	2100	Differential	2.5, 3.3	30	0.31	16-VFQFPN
8S89832I	4	LVDS	1	2000	Differential	2.5, 3.3	25	0.09	16-VFQFPN
2304NZG-1LF	4	LVCMOS	1	0-140	LVCMOS	3.3	100	n/a	8-TSSOP
524	4	LVCMOS	1	0-200	LVCMOS	2.5, 3.3, 5	50	n/a	8-SOIC
551	4	LVCMOS	1	0-160	LVCMOS	3.3, 5	250	n/a	8-SOIC
553	4	LVCMOS	1	0-200	LVCMOS	2.5, 3.3, 5	50	n/a	8-SOIC
554G-01A	4	PECL	1	0-200	PECL	3.3, 5	50	n/a	16-TSSOP
556M-04	4	LVCMOS	1	5-27	LVCMOS	2.5, 3.3, 5	50	n/a	8-SOIC
5T30553	4	LVCMOS	1	0-200	LVCMOS	2.5, 3.3	50	n/a	8-SOIC
6P30007A	4	LVDS	2	12.6 - 13.4	LVCMOS, Sine	1.8		n/a	24 VFQFN

Part #	# of Outputs	Output Type	# of Inputs	Max Output Frequency (MHz)	Input Type	Output Voltage Level	Output Skew	Additive Phase Noise	Package Type
621	4	LVCMOS	1	0-200	VDD to 3.3V LVCMOS	1.2 - 1.8	150	n/a	8-SOIC, 8-VFQFPN
651	4	LVCMOS	1	0-200	LVCMOS	1.5, 1.8, 2.5	250	n/a	8-SOIC
6T39007A	4	LVCMOS, Sine	1	12.6-13.4	LVCMOS, Sine	2.5, 3.3		n/a	24-VFQFPN
74FCT38074	4	LVCMOS	1	0-166	LVCMOS	3.3	100	n/a	8-SOIC
9DB433	4	HCSL	1	5 - 166	HSCL	3.3	50	50	28-SSOP
9DB423B	4	HCSL	1	33 - 400	HSCL	3.3	50	50	28-SSOP, 28-TSSOP
85214I	5	HSTL	2	700	LVCMOS, Differential	2.5, 3.3	40	n/a	20-TSSOP
85105I	5	HCSL	2	500	LVCMOS, Differential	2.5, 3.3	100	0.24	20-TSSOP
85310I-21	5	LVPECL	2	700	Differential	2.5, 3.3	50	0.13	32-LQFP
853S014I	5	LVPECL	2	2000	Differential	2.5, 3.3	20	0.07	20-TSSOP
5V2305	5	LVCMOS	1	0-200	LVCMOS	2.5, 3.3	75	n/a	16-TSSOP, 16-VFQFPN,
74FCT38075	5	LVCMOS	1	0-166	LVCMOS	3.3	100	n/a	8-SOIC
8536I-33	6	LVCMOS, LVPECL	1	266	LVCMOS	2.5, 3.3	80	0.32	20-TSSOP
8536-01	6	LVPECL	2	700	LVCMOS, Differential	2.5, 3.3	55	0.19	24-TSSOP
83905I	6	LVCMOS	1	40	Crystal	2.5, 3.3 ,1.8	80	0.18	16-TSSOP
5T9306	6	LVDS	2	1000	LVCMOS, Differential	2.5, 3.3	1000	0.16	28-VFQFPN
853S013I	6	LVPECL	1	2000	Differential	2.5, 3.3	25	0.05	20-SOIC
854S006I	6	LVDS	1	1700	Differential	2.5, 3.3	55	0.067	24-TSSOP
9DB633	6	HCSL	1	5 - 166	HSCL	3.3	50	50	28-SSOP
8308I	8	LVCMOS	2	350	LVCMOS, Differential	2.5, 3.3	160	n/a	24-TSSOP
8538I-26	8	LVCMOS, LVPECL	2	266	LVCMOS, Crystal	2.5, 3.3	112	0.19	24-TSSOP
8538-31	8	LVPECL	2	266	LVCMOS, Crystal	3.3	50	n/a	28-TSSOP
83908I-02	8	LVCMOS	3	200	LVCMOS, Crystal	2.5, 3.3 ,1.8	70	0.39	24-TSSOP
85108I	8	HCSL	1	500	Differential	2.5, 3.3	80	0.09	24-TSSOP
85408I	8	LVDS	1	700	Differential	2.5, 3.3	50	0.167	24-TSSOP
853S310I	8	LVPECL	2	2000	Differential	3.3	75	0.14	28-PLCC
552G-02	8	LVCMOS	2	0-200	LVCMOS	2.5, 3.3, 5	50	n/a	16-TSSOP
552AR-01	8	LVCMOS	2	10-200	LVCMOS	3.3, 5	250	n/a	20-SSOP
6P30006A	8	LVCMOS, Sine	1	12.6-13.4	LVCMOS, Sine	1.8		n/a	24-VFQFPN
9DB833	8	HCSL	1	5 - 166	HSCL	3.3	50	50	48-SSOP, 48-TSSOP
9DB823B	8	HCSL	1	33 - 400	HSCL	3.3	50	50	48-SSOP, 48-TSSOP
8521	9	HSTL	2	500	Differential	2.5, 3.3	50	0.17	32-TQFP
8531-01	9	LVPECL	2	500	Differential	3.3	50	0.17	32-TQFP
83947I-147	9	LVCMOS	2	250	LVCMOS	2.5, 3.3	130	0.2	32-TQFP
853S031I	9	LVPECL	2	1600	Differential	2.5, 3.3	55	n/a	32-TQFP
83210	10	HSTL	1	150	LVCMOS	2.5, 3.3	110	n/a	32-TQFP
85210-31	10	HSTL	2	650	Differential	2.5, 3.3	50	n/a	32-TQFP
85310I-11	10	LVPECL	2	700	Differential	2.5, 3.3	55	0.13	32-TQFP
851010	10	HCSL	1	250	Differential	2.5, 3.3	165	0.24	32-TQFP