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Table with columns: APPLICATION NO., FILING DATE, FIRST NAMED INVENTOR, ATTORNEY DOCKET NO., CONFIRMATION NO.
Row 1: 16/541,094, 08/14/2019, Yattung LAM, 20160.0036.NPUS00, 7679
Row 2: 63467, 7590, 09/09/2020, [EXAMINER: WANG, TED M]
Row 3: [ART UNIT: 2633]
Row 4: [NOTIFICATION DATE: 09/09/2020] [DELIVERY MODE: ELECTRONIC]

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

tevenbly@rameyfirm.com
uspto@rameyfirm.com
wramey@rameyfirm.com



**DETAILED ACTION**

***Notice of Pre-AIA or AIA Status***

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

***Response to Election Requirement***

2. Applicant's proposed election without traverse of Group I, Species I.A (claims 1-9, 14-18 and 21) in the reply filed on 6/1/2020 was withdrawn. The new election Group I (claims 1-21) was elected without traverse after Applicant initiated interview dated 8/31/2020.

***Foreign Priority***

3. Acknowledgment is made of applicant's claim for foreign priority based on an application filed in China on 03/01/2019. It is noted, however, that applicant has not filed a certified copy of the 201910155916.7 application as required by 37 CFR 1.55.

***Claim Rejections - 35 USC § 102***

4. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a)(1) the claimed invention was patented, described in a printed publication, or in public use, on sale or otherwise available to the public before the effective filing date of the claimed invention.

6. Claims 1-4, 14 and 15 are rejected under 35 U.S.C. 102(a)(1) as being anticipated by Lugthart et al. (US 9,337,993).

- With regard claim 1, Lugthart et al. discloses an active 1:N breakout cable (Fig.16 elements 1011 and 1012 and Fig.17A elements 1100 and col.49 lines 23-40) that comprises:

- a unary end connector (Fig.17A element 1101, QSFP, 1104 and 1105, 1112 and col.49 lines 35-48, where examiner considers elements 1104, 1105 and 1112 as part of the unary end connector) connected by electrical conductors to each of N split end connectors, N being an integer greater than 1 (Fig.17A elements 1103a-1103d, SFP+, and col.49 lines 27-31, where N=4),

- the unary end connector being adapted to fit into a network interface port of a primary host device (Fig.17A element 1101, QSFP interface and col.49 lines 41-48) to provide output PAM4 electrical signals (col.50 lines 8-22, 23-50 and Fig.1C and col.11 lines 45-50, where the unary end of cable 1104 at the second TRANSCEIVER 1112 OUTPUT provides PAM4 electrical signals) that convey a multi-lane outbound data stream to the primary host device (Fig.17A elements 1123a-1123d and 1124a-1124d and col.50 lines 29-50) and to accept input PAM4 electrical signals (col.49 line 49 - col.50 line 7 and Fig.1C and col.11 lines 45-50, where the unary end of cable 1104 at the first TRANSCEIVER 1111 OUTPUT provides PAM4 electrical signals) that convey multi-lane inbound data stream from the primary host device (Fig.17A elements 1123a-1123d and 1124a-1124d and col.50 lines 29-50), and

- each of the split end connectors being adapted to fit into a network interface port of a secondary host device (Fig.16 elements 1001, 1041a-1041d and Fig.17A 1103a-1103d and col.50 lines 8-50) to provide output NRZ electrical signals that convey a split portion of the inbound data stream to that secondary host device (col.50 lines 8-22, 23-50 and Fig.1C and col.11 lines 45-50, where the split portion of cable 1106a-1106d at the second TRANSCEIVER 1112 OUTPUT provides NRZ electrical signals) and to accept input NRZ electrical signals (col.50 lines 8-22, 23-50 and Fig.1C and col.11 lines 45-50, where the split portion of cable 1106a-1106d at the second TRANSCEIVER 1112 INPUT provides NRZ electrical signals) that convey a split portion of the outbound data stream from that secondary host device (Fig.17A elements 1123a-1123d and 1124a-1124d and col.50 lines 29-50).
- With regard claim 2, Lugthart et al. further discloses wherein the unary end connector (Fig.17A element 1101, QSFP, 1104 and 1105, 1112 and col.49 lines 35-48, where examiner considers elements 1104, 1105 and 1112 as part of the unary end connector) includes a transceiver (Fig.17A element 1112) that performs clock and data recovery (col.50 lines 25-27 and Fig.1C element 22a-22b and col.10 lines 52-54) on the input PAM4 electrical signals (col.11 lines 41-50) to extract and re-modulate the inbound data stream as diverging transit signals (where the diverging signal is considered as the signals 1123a-1123d been converted by the transceiver 1112, col.50 lines 23-50) that transport the split portions of the inbound data stream via the electrical conductors to the split end connectors (Fig.17A elements 1103a-1103d), and wherein the

- transceiver performs clock and data recovery (col.50 lines 33-50 and Fig.1C element 12a-12d and col.10 lines 40-60) on converging transit signals (where the converging signal is considered as the signals from the 1124a-1124d to be converted by the transceiver 1112, col.50 lines 23-50) to extract and remodulate the outbound data stream as said output PAM4 electrical signals (col.10 line 61 – col.11 line 14, where the transceiver (para.50 lines 23-33) as shown in Fig.1C converts the NRZ signal to PAM4 signals (4:1 multiplexing operation to data transmitted over the primary cable 1104)(col.50 lines 23-33)).
- With regard claim 3, Lugthart et al. further discloses wherein the diverging transit signals (where the diverging signal is considered as the signals 1123a-1123d been converted by the transceiver 1112, col.50 lines 23-50) and the converging transit signals (where the converging signal is considered as the signals from the 1124a-1124d to be converted by the transceiver 1112, col.50 lines 23-50) are NRZ electrical signals (col.50 lines 8-22, 23-50 and Fig.1C and col.11 lines 45-50, where the split portion of cable 1106a-1106d at the second TRANSCEIVER 1112 INPUT/OUTPUT provides NRZ electrical signals).
  - With regard claim 4, Lugthart et al. further discloses wherein the transceiver in the unary end connector further performs forward error correction when extracting the outbound data stream (Fig.1C elements 15a-15d and 25a-25d).
  - With regard claim 14, Lugthart et al. discloses cable manufacturing method that comprises:
    - packaging a transceiver (Fig.17a element 1112) into a unary end connector (Fig.17A element 1101, QSFP, 1104 and 1105, 1112 and col.49 lines

35-48, where examiner considers elements 1104, 1105 and 1112 as part of the unary end connector) that is adapted to mate with a network interface port of a primary host device (Fig.17A element 1101 QSFP), the transceiver being configured to provide output PAM4 electrical signals that convey a multi-lane outbound data stream to the primary host device (col.10 line 61 – col.11 line 14, where the transceiver (para.50 lines 23-33) as shown in Fig.1C converts the NRZ signal to PAM4 signals (4:1 multiplexing operation to data transmitted over the primary cable 1104)(col.50 lines 23-33)) and to accept input PAM4 electrical signals that convey multi-lane inbound data stream from the primary host device (col.49 line 49 - col.50 line 7 and Fig.1C and col.11 lines 45-50, where the unary end of cable 1104 at the first TRANSCEIVER 1111 OUTPUT provides PAM4 electrical signals); and

connecting each of N split end connectors (Fig.17A elements 1103a-1103d) to the unary end connector (Fig.17A element 1101, QSFP, 1104 and 1105, 1112 and col.49 lines 35-48) with electrical conductors, where N is an integer greater than one (Fig.17A elements 1106a-1106d), and where each of the split end connectors is adapted to mate with a network interface port of a secondary host device (Fig.17A elements 1103a-1103d and Fig.16 elements 1021a-1021d and col.49 lines 23-40) to provide output NRZ electrical signals that convey a split portion of the inbound data stream to that secondary host device (Fig.17A elements 1123a-1123d, where the NRZ signal is considered as the signals 1123a-1123d been converted by the transceiver 1112, col.50 lines 23-50) and to accept input NRZ electrical signals that convey a split portion of the

outbound data stream from that secondary host device (Fig.17A elements 1124a-1124d, where the NRZ signal is considered as the signals from the 1124a-1124d to be converted by the transceiver 1112, col.50 lines 23-50),

the transceiver in the unary end connector (Fig.17A element 1101, QSFP, 1104 and 1105, 1112 and col.49 lines 35-48, where examiner considers elements 1104, 1105 and 1112 as part of the unary end connector) includes a transceiver (Fig.17A element 1112) that performs clock and data recovery (col.50 lines 25-27 and Fig.1C element 22a-22b and col.10 lines 52-54) on the input PAM4 electrical signals (col.11 lines 41-50) to extract and re-modulate the inbound data stream as diverging transit signals (where the diverging signal is considered as the signals 1123a-1123d been converted by the transceiver 1112, col.50 lines 23-50) that transport the split portions of the inbound data stream via the electrical conductors to the split end connectors (Fig.17A elements 1103a-1103d), and wherein the transceiver performs clock and data recovery (col.50 lines 33-50 and Fig.1C element 12a-12d and col.10 lines 40-60) on converging transit signals (where the converging signal is considered as the signals from the 1124a-1124d to be converted by the transceiver 1112, col.50 lines 23-50) to extract and remodulate the outbound data stream as said output PAM4 electrical signals (col.10 line 61 – col.11 line 14, where the transceiver (para.50 lines 23-33) as shown in Fig.1C converts the NRZ signal to PAM4 signals (4:1 multiplexing operation to data transmitted over the primary cable 1104)(col.50 lines 23-33)).

- With regard claim 15, Lugthart et al. further discloses wherein the diverging transit signals (where the diverging signal is considered as the signals 1123a-1123d been converted by the transceiver 1112, col.50 lines 23-50) and the converging transit signals (where the converging signal is considered as the signals from the 1124a-1124d to be converted by the transceiver 1112, col.50 lines 23-50) are NRZ electrical signals (col.50 lines 8-22, 23-50 and Fig.1C and col.11 lines 45-50, where the split portion of cable 1106a-1106d at the second TRANSCEIVER 1112 INPUT/OUTPUT provides NRZ electrical signals).

***Claim Rejections - 35 USC § 103***

7. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102 of this title, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 19-21 are rejected under 35 U.S.C. 103 as being unpatentable over Lugthart et al. (US 9,337,993).

- With regard claim 19, Lugthart et al. discloses cable manufacturing method that comprises:

packaging a transceiver (Fig.17A element 1112) into N split end connectors (Fig.17A elements 1103a-1103d) adapted to mate with a network interface port of a secondary host device (Fig.16 elements 1001), where N is an integer greater than one (Fig.16 elements 1001 and col.49 lines 23-26, where  $N=4$ ), and where the transceiver in the split end connectors is configured to provide output NRZ electrical signals that convey a split portion of a multi-lane inbound data stream to that secondary host device and to accept input NRZ electrical signals that convey a split portion of a multi-lane outbound data stream from that secondary host device (col.50 lines 8-22, 23-50 and Fig.1C and col.11 lines 45-50, where the split portion of cable 1106a-1106d at the second TRANSCEIVER 1112 INPUT/OUTPUT provides NRZ electrical signals that provided by elements 1124a-1124d); and connecting each of the split end connectors to a unary end connector (Fig.17A element 1101) via electrical conductors (Fig.17A element 1104, 1106a-1106d),

the unary end connector (Fig.17A element 1101) being adapted to mate with a network interface port of a primary host device (Fig.16 element 1003 and col.49 lines 23-26) to provide output PAM4 electrical signals (col.50 lines 8-22, 23-50 and Fig.1C and col.11 lines 45-50, where the unary end of cable 1104 at the second TRANSCEIVER 1112 OUTPUT provides PAM4 electrical signals) that convey the outbound data stream to the primary host device (Fig.17A elements 1123a-1123d and 1124a-1124d and col.50 lines 29-50) and to accept input PAM4 electrical signals (col.49 line 49 - col.50 line 7 and Fig.1C and col.11 lines 45-50, where the unary end of cable 1104 at the first TRANSCEIVER 1111

OUTPUT provides PAM4 electrical signals) that convey the inbound data stream from the primary host device (Fig.17A elements 1123a-1123d and 1124a-1124d and col.50 lines 29-50),

the transceiver (Fig.17A element 1112) in split end connectors (Fig.17A elements 1103a-1103d) being configured to perform clock and data recovery on the input NRZ electrical signals (col.50 lines 33-50 and Fig.1C element 12a-12d and col.10 lines 40-60) to extract and remodulate the split portion of the outbound data stream as converging transit signals (where the converging signals are considered as the signals at element 1104 that been converted by the transceiver 1112 from NRZ to PAM4 (Fig.1C element 40 and col.10 lines 40-60) from elements 1106a-1106d, col.50 lines 23-50) that transport the split portions of the outbound data stream via the electrical conductors (Fig.17A element 1104) to the unary end connector (Fig.17A element 1101), and being further configured to perform clock and data recovery (col.50 lines 25-27 and Fig.1C element 22a-22b and col.10 lines 52-54) on diverging transit signals (where the diverging signal is considered as the signal at element 1104 that to be converted by the transceiver 1112 from PAM4 to NRZ signals (Fig.1C element 40 and col.10 lines 40-60) at element 1106a-1106d, col.50 lines 23-50) to extract and remodulate the split portion of the inbound data stream as said output NRZ electrical signals (col.10 line 61 – col.11 line 14, where the transceiver 1112 (para.50 lines 23-33) as shown in Fig.1C converts the PAM4 signal to NRZ

signals (4:1 multiplexing operation to data transmitted over the primary cable 1104)(col.50 lines 23-33)).

Lugthart et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching a transceiver into each of N split end connectors.

However, Lugthart et al. further teaches a transceiver (Fig.17A element 1112 and Fig.1C and col.50 lines 25-50) comprising multiple transmit paths (Fig.1C element 40, EGRESS/TRANMIT, where the first transmit path equalizer 11a receives a first host side differential transmit signal TXA+, TXA-, the second transmit path equalizer 11b receives a second differential transmit signal TXB+, TXB-, the third transmit path equalizer 11c receives a third differential transmit signal TXC+, TXC-, and the fourth transmit path equalizer 11d receives a fourth differential transmit signal TXD+, TXD-) and receiving paths (Fig.1C element 40, INGRESS/RECEIVE, where the first receive path equalizer 21a receives a first line side differential receive signal RX1+, RX1-, and the second receive path equalizer 21b receives a second line side differential receive signal RX2+, RX2-.)

Lugthart et al. discloses all of the subject matter as described in the above paragraph except for specifically teaching a transceiver into each of N split end connectors. It would have been obvious to one having ordinary skill in the art at the time before the effective filing date of the claimed invention to make the transceiver (Fig.17A element 1112) to many separated transceivers (by separating the first transmit path circuit TXA+ & TXA-, 11a-15a, 16, 17a and TX1+ & TX1- and first receive path circuit RX1+ & RX1-, 21a-25a, 26, 27a, RXA+

- &RXA- as that of the first separated transceiver, the second transmit path circuit TXB+ & TXB-, 11b-15b, 16, 17b and TX2+ & TX2- and second receive path circuit RX2+ & RX2-, 21b-25b, 26, 27b, RXB+ &RXB- as that of the separated second transceiver, ... etc.), since it has been held that constructing a formerly integral structure in various elements involves only routine skill in the art. *Nerwin v. Erlichman*, 168 USPQ 177, 1 t.
- With regard claim 20, Lugthart et al. further teaches wherein the diverging transit signals (where the diverging signal is considered as the signal at element 1104 that to be converted by the transceiver 1112 from PAM4 to NRZ signals (Fig.1C element 40 and col.11 lines 45-50) at element 1106a-1106d, col.50 lines 23-50) and the converging transit signals (where the converging signals are considered as the signals at element 1104 that been converted by the transceiver 1112 from NRZ to PAM4 (Fig.1C element 40 and col.11 lines 45-50) from elements 1106a-1106d, col.50 lines 23-50) are PAM4 electrical signals.
  - With regard claim 21, Lugthart et al. further teaches packaging a transceiver (Fig.17A element 1111) in the unary end connector (Fig.17A 1101 QSFP), the transceiver in the unary end connector being configured to perform clock and data recovery on the input PAM4 electrical signals (col.49 line 59 – col.50 line 5 and Fig.1C element 22a-22b and col.11 lines 45-50) to extract and re-modulate (Fig.1C element 21a-27a/21b-27b) the inbound data stream as the diverging transit signals (Fig.1C elements RXA+/RXA- to RXD+/RXD-) that transport the split portions of the inbound data stream (Fig.1C elements RXA+/RXA- to RXD+/RXD-) via the electrical conductors (Fig.17A elements 1106a-1106d) to

the split end connectors (Fig.17A elements 1103a-1103d), and being further configured to perform clock and data recovery (col.49 line 59 – col.50 line 5 and Fig.1C element 12a-12d) on the converging transit signals (Fig.1C elements TXA+/TXA- TO TXD+/TXD-) to extract and re-modulate the outbound data stream (Fig.1C elements 11a-11d, 12a-12d, 15a-15d, 16, 17a-17b and 14a-14b) as said output PAM4 electrical signals (Fig.1C elements TX1+/TX1- to TX2+/TX2- and col.11 lines 45-50).

***Allowable Subject Matter***

9. Claims 5-13 and 16-18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten to overcome the objection(s) set forth in this Office action and rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

10. Examiner's Note: Examiner has cited particular columns and line numbers in the references applied to the claims above for the convenience of the applicants. Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicants in preparing responses, to fully consider the references in their entirety as potentially teaching all or part of the claimed invention, as well as the context of the passage as taught by the prior art or disclosed by the Examiner.

In the case of amending the claimed invention, Applicant is respectfully requested to indicate the portion(s) of the specification which dictate(s) the structure

relied on for proper interpretation and also to verify and ascertain the metes and bounds of the claimed invention.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ted M. Wang whose telephone number is 571-272-3053. The examiner can normally be reached on M-F, 7:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sam Ahn can be reached on 571-272-3044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ted M Wang/  
Primary Examiner, Art Unit 2633

<b>Notice of References Cited</b>	Application/Control No. 16/541,094	Applicant(s)/Patent Under Reexamination LAM et al.	
	Examiner TED M WANG	Art Unit 2633	Page 1 of 1

**U.S. PATENT DOCUMENTS**

*	Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	CPC Classification	US Classification
*	A US-9337993-B1	05-2016	Lugthart; Marcel Louis	H04L7/0054	1/1
B					
C					
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S					
T					

**NON-PATENT DOCUMENTS**

*	U	V	W	X
	Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)			

\*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)  
 Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.

<b><i>Search Notes</i></b> 	<b>Application/Control No.</b> 16/541,094	<b>Applicant(s)/Patent Under Reexamination</b> LAM et al.
	<b>Examiner</b> TED M WANG	<b>Art Unit</b> 2633

<b>CPC - Searched*</b>		
<b>Symbol</b>	<b>Date</b>	<b>Examiner</b>
H04B 1/38, 004	08/31/2020	TW
H04L 7/0016	08/31/2020	TW

<b>CPC Combination Sets - Searched*</b>		
<b>Symbol</b>	<b>Date</b>	<b>Examiner</b>


<b>US Classification - Searched*</b>			
<b>Class</b>	<b>Subclass</b>	<b>Date</b>	<b>Examiner</b>

\* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

<b>Search Notes</b>		
<b>Search Notes</b>	<b>Date</b>	<b>Examiner</b>
EAST - USPGPUB, USPAT, USOCR, EPO, JPO, DERWENT, IBM_TDB, see attached search report	08/31/2020	TW
ODP - searched and reviewed from PALM and EAST	08/31/2020	TW

<b>Interference Search</b>			
<b>US Class/CPC Symbol</b>	<b>US Subclass/CPC Group</b>	<b>Date</b>	<b>Examiner</b>

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<b><i>Index of Claims</i></b> 	<b>Application/Control No.</b> 16/541,094	<b>Applicant(s)/Patent Under Reexamination</b> LAM et al.
	<b>Examiner</b> TED M WANG	<b>Art Unit</b> 2633

✓	<b>Rejected</b>	-	<b>Cancelled</b>	N	<b>Non-Elected</b>	A	<b>Appeal</b>
=	<b>Allowed</b>	÷	<b>Restricted</b>	I	<b>Interference</b>	O	<b>Objected</b>

CLAIMS									
<input type="checkbox"/> Claims renumbered in the same order as presented by applicant <input type="checkbox"/> CPA <input type="checkbox"/> T.D. <input type="checkbox"/> R.1.47									
CLAIM		DATE							
Final	Original	04/28/2020	08/31/2020						
	1	÷	✓						
	2	÷	✓						
	3	÷	✓						
	4	÷	✓						
	5	÷	○						
	6	÷	○						
	7	÷	○						
	8	÷	○						
	9	÷	○						
	10	÷	○						
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	14	÷	✓						
	15	÷	✓						
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	20	÷	✓						
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	31	÷	N						
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	35	÷	N						
	36	÷	N						
	37	÷	N						
	38	÷	N						

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	16541094
	Filing Date	2019-08-14
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	Wang, Ted M
	Attorney Docket Number	20160.0036.NPUS00

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	1	2018161273	WO	A1	2018-09-13	CREDO TECHNOLOGY GROUP LTD.		

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	16541094
	Filing Date	2019-08-14
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	Wang, Ted M
	Attorney Docket Number	20160.0036.NPUS00

1	ExParte Quayle Action received March 11, 2020 in U.S. Application no. 16/539,910
2	Management Data Input/Output. (2018, November 25). Wikipedia. Retrieved January 23, 2019, from <a href="https://en.wikipedia.org/wiki/Management_Data_Input/Output">https://en.wikipedia.org/wiki/Management_Data_Input/Output</a> .
3	QSFP-DD MSA - QSFP-DD Hardware Specification for QSFP Double Density 8X Pluggable Transceiver Rev 4.0 Candidate. August 15, 2018.

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**EXAMINER SIGNATURE**

Examiner Signature	/TED M WANG/	Date Considered	08/20/2020
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\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> See Kind Codes of USPTO Patent Documents at [www.USPTO.GOV](http://www.USPTO.GOV) or MPEP 901.04. <sup>2</sup> Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>3</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>4</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. <sup>5</sup> Applicant is to place a check mark here if English language translation is attached.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	16541094
	Filing Date	2019-08-14
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	Wang, Ted M
	Attorney Docket Number	20160.0036.NPUS00

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

- The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.
- A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Dan Krueger/	Date (YYYY-MM-DD)	2020-06-01
Name/Print	Dan Krueger	Registration Number	42771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

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2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	16541094
	Filing Date	2019-08-14
	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	WANG, Ted M.
	Attorney Docket Number	20160.0036.NPUS00

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	First Named Inventor	Yattung LAM
	Art Unit	2633
	Examiner Name	WANG, Ted M.
	Attorney Docket Number	20160.0036.NPUS00

1		Notice of Allowance dated June 24, 2020 for Application no. 16/539,910
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Examiner Signature	/TED M WANG/	Date Considered	08/20/2020
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Signature	/Dan Krueger/	Date (YYYY-MM-DD)	2020-08-20
Name/Print	Daniel Krueger	Registration Number	42771

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## Bibliographic Data

Application No: 16/541,094

Foreign Priority claimed:  Yes  No

35 USC 119 (a-d) conditions met:  Yes  No  Met After Allowance

Verified and Acknowledged:

/TED M WANG/

Examiner's Signature

Initials

Title:

ACTIVE 1:N BREAKOUT CABLE

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FILING or 371(c) DATE	CLASS	GROUP ART UNIT	ATTORNEY DOCKET NO.
08/14/2019	375	2633	20160.0036.NPUS00
<b>RULE</b>			

### APPLICANTS

CREDO TECHNOLOGY GROUP LIMITED, Grand Cayman, CAYMAN ISLANDS

### INVENTORS

Yattung LAM, San Jose, CA, UNITED STATES

Baohua CHEN, Xiamen City, CHINA

Yifei DAI, Shanghai, CHINA

William J. BRENNAN, San Jose, CA, UNITED STATES

### CONTINUING DATA

### FOREIGN APPLICATIONS

CHINA CN201910155916.7 03/01/2019

### IF REQUIRED, FOREIGN LICENSE GRANTED\*\*

08/23/2019

### STATE OR COUNTRY

UNITED STATES

### ADDRESS

Ramey & Schwaller, LLP

5020 Montrose Blvd.

Suite 800

Houston, TX 77006

UNITED STATES

### FILING FEE RECEIVED

\$2,375

## EAST Search History

### EAST Search History (Prior Art)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	Time Stamp
S1	0	16/541,094	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/08/20 15:16
S2	10,758	H04B1/38.cpc. H04B1/004.cpc. H04L7/0016.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/08/20 15:32
S3	378	((("LAM") near3 ("Yattung")) OR (("CHEN") near3 ("Baohua"))) OR (("DAI") near3 ("Yifei")) OR (("BRENNAN") near3 ("William"))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/08/20 15:33
S4	2	("7401985"   "9322704").PN.	US-PGPUB; USPAT	OR	OFF	2020/08/20 15:37
S5	0	S2 AND S3	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/08/20 15:37
S6	0	ACTIVE WITH BREAKOUT adj3 cable same PAM\$2 with multiland with (split\$4 or divid\$3 or separat\$3 or break\$3) with (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 07:47
S7	17	((("CREDO") near3 ("TECHNOLOGY") near3 ("GROUP") near3 ("LIMITED"))).AS,AANM.	USPAT	OR	OFF	2020/08/31 07:48
S11	10,774	H04B1/38.cpc. H04B1/004.cpc. H04L7/0016.cpc.	US-PGPUB; USPAT; USOCR; FPRS; EPO; JPO; DERWENT; IBM_TDB	OR	OFF	2020/08/31 07:55

S12	1	S11 and ACTIVE WITH BREAKOUT adj3 cable and PAM\$2 with (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 07:55
S13	379	((("LAM") near3 ("Yattung")) OR ((("CHEN") near3 ("Baohua")) OR ((("DAI") near3 ("Yifei")) OR ((("BRENNAN") near3 ("William")))).INV.	US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT	OR	OFF	2020/08/31 07:55
S14	0	S13 and ACTIVE WITH BREAKOUT adj3 cable and PAM\$2 with (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 07:55
S15	1	ACTIVE WITH BREAKOUT adj3 cable and PAM\$2 with (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 07:55
S18	8	S11 and BREAKOUT adj3 cable and PAM\$2 with NRZ with conver\$4	US-PGPUB; USPAT	OR	OFF	2020/08/31 07:57
S19	0	S13 and BREAKOUT adj3 cable and PAM\$2 with NRZ with conver\$4	US-PGPUB; USPAT	OR	OFF	2020/08/31 07:58
S20	8	BREAKOUT adj3 cable and PAM\$2 with NRZ with conver\$4	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:02
S21	36	("20060244505"   "20070252631"   "20080175586"   "20080304608"   "20100258952"   "20130229211"   "6603754"   "7095803"   "7650526"   "8013653"   "8108710"   "8351559"   "8451883"   "8736321"   "8855179").PN. OR ("9337993").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/08/31 08:02
S22	6	S21 and breakout and PAM\$2 same NRZ	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:03
S23	39	("20030048858"   "20040139220"   "20060244505"   "20070046335"   "20070195911"   "20070252631"   "20080175586"   "20080304608"   "20090154467"   "20100258952"   "20110299858"   "20120082466"   "20120155527"   "20130229211"   "20140043079"   "20140191788"   "20140362869"   "20150028929"   "20150071651"   "6215793"   "6603754"   "6909980"   "7095803"   "7650526"   "8013653"   "8108710"   "8286022"   "8351559"   "8451883"   "8494038"   "8532139"   "8736321"   "8855179"   "9300444"   "9337993"   "9379878"   "9571308").PN. OR ("9742689").URPN.	US-PGPUB; USPAT; USOCR	OR	OFF	2020/08/31 08:46
S24	3	S23 and breakout and PAM\$2 same NRZ	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:47
S25	8	S11 and BREAKOUT and PAM\$2 with (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:48

S26	9	BREAKOUT and PAM\$2 with (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:48
S27	9	BREAKOUT and PAM\$2 same (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:49
S32	8	S11 and (BREAKOUT or ("1:N" or active or split\$4 or multi\$2lane or multi\$2path or multi\$2channel) adj3 cable) and PAM\$2 same (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:53
S33	19	(BREAKOUT or ("1:N" or active or split\$4 or multi\$2lane or multi\$2path or multi\$2channel) adj3 cable) and PAM\$2 same (NRZ)	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:53
S34	0	cable with PAM\$2 with NRZ with conver\$4	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:57
S35	43	cable and PAM\$2 with NRZ with conver\$4	US-PGPUB; USPAT	OR	OFF	2020/08/31 08:57

8/31/2020 2:52:07 PM

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Doc code: IDS

Doc description: Information Disclosure Statement (IDS) Filed

PTO/SB/08a (02-18)

Approved for use through 11/30/2020. OMB 0651-0031

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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b> ( Not for submission under 37 CFR 1.99)	Application Number	
	Filing Date	
	First Named Inventor	Yattung LAM
	Art Unit	
	Examiner Name	
	Attorney Docket Number	20160.0036.NPUS00

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Examiner Initial*	Cite No	Patent Number	Kind Code <sup>1</sup>	Issue Date	Name of Patentee or Applicant of cited Document	Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear	
	1	9,322,704	B1	2016-04-26	Neveux		
	2	7,401,985	B2	2008-07-22	Aronson, et al		

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	Filing Date		
	First Named Inventor	Yattung LAM	
	Art Unit		
	Examiner Name		
	Attorney Docket Number	20160.0036.NPUS00	

Examiner Initials*	Cite No	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>5</sup>
	1	Rumer, B. "Fighting Jitter in Fibre-Channel Designs." Electronic Engineering Times, (2001, February 01). Retrieved August 13, 2019, from <a href="https://www.eetimes.com/document.asp?doc_id=1277249">https://www.eetimes.com/document.asp?doc_id=1277249</a>	
	2	IEEE P802.3cd/D1.2, 3rd February 2017 (Amendment of IEEE Std 802.3-2015 as amended) IEEE Draft Standard for Ethernet Amendment: Media Access Control Parameters for 50 Gb/s, 100 Gb/s and 200 Gb/s Operation. The Institute of Electrical and Electronics Engineers, Inc., 2017; S.I.: IEEE.	
	3	40 Gigabit Ethernet, 40G QSFP+, 40GBASE-LR4, 40G-BASE-SR4, CFP module, CXP Transceiver, MPO MTP Fiber on May 25, 2015 [ <a href="http://www.cables-solutions.com/guide-to-40-gigabit-ethernet-options.html">http://www.cables-solutions.com/guide-to-40-gigabit-ethernet-options.html</a> ]	

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	Examiner Name		
	Attorney Docket Number	20160.0036.NPUS00	

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

Signature	/Daniel J. Krueger/	Date (YYYY-MM-DD)	2019-08-14
Name/Print	Daniel J. Krueger	Registration Number	42,771

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. **DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

## Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.