

Nasdaq GEMX System Settings

1. Hours of Operation

6:00 a.m. ET – System begins accepting orders.

9:30 a.m. ET – System begins disseminating imbalance and price information for the opening auction. 9:30 a.m. ET – System begins executing orders.

4:00 p.m. ET – System stops accepting and executing equity options orders.

4:15 p.m. ET – System stops accepting and executing ETF and Index Options orders.

2. OPENING

- The GEMX Opening Process utilizes the Primary Listing Market for the Underlying Security. The underlying security must be open on the primary market for 100ms for the Opening Process to commence.
- Valid Width Quote Differentials Table:** The table of values defined as an acceptable bid/ask differential for individual market maker quotes required to begin the opening process and open with a trade in absence of an executable opening cross.

Bid Price low end of range	Bid Price high end of range	Maximum bid/ask differential
\$0.00	\$1.99	\$0.75
\$2.00	\$4.99	\$1.20
\$5.00	\$9.99	\$1.50
\$10.00	\$19.99	\$2.40
\$20.00	\$20.00+	\$3.00

- Quality Opening Market Differentials Table** – The table of values defined as an acceptable bid/ask differential in order to establish a “quality opening market.”

– Non-Penny Issues:

Price low end of range	Price high end of range	Maximum bid/ask differential
\$0.00	\$1.00	\$0.15
\$1.01	\$2.00	\$0.22
\$2.01	\$3.00	\$0.30
\$3.01	\$5.00	\$0.45
\$5.01	\$7.00	\$0.60
\$7.01	\$10.00	\$0.75

Price low end of range	Price high end of range	Maximum bid/ask differential
\$10.01	\$20.00	\$0.90
\$20.01	\$30.00	\$1.20
\$30.01	\$40.00	\$1.50
\$40.01	40.01+	\$2.25

– Standard Penny Issues (excluding SPY/IWM/QQQ):

Price low end of range	Price high end of range	Maximum bid/ask differential
\$0.00	\$1.00	\$0.10
\$1.01	\$2.00	\$0.10
\$2.01	\$3.00	\$0.14
\$3.01	\$5.00	\$0.20
\$5.01	\$7.00	\$0.30
\$7.01	\$10.00	\$0.40
\$10.01	\$15.00	\$0.60
\$15.01	\$20.00	\$0.80
\$20.01	\$30.00	\$1.20
\$30.01	\$40.00	\$1.60
\$40.01	\$40.01+	\$2.00

– Special Penny Issues (SPY/IWM/QQQ)

Price low end of range	Price high end of range	Maximum bid/ask differential
\$0.00	\$0.40	\$0.06
\$0.41	\$1.00	\$0.10
\$1.01	\$2.00	\$0.12
\$2.01	\$3.00	\$0.14
\$3.01	\$5.00	\$0.18
\$5.01	\$7.00	\$0.24
\$7.01	\$10.00	\$0.40
\$10.01	\$15.00	\$0.60
\$15.01	\$20.00	\$0.80
\$20.01	\$30.00	\$1.00
\$30.01	\$40.00	\$1.20
\$40.01	\$40.01+	\$1.60

- **Opening Quote Range Table** – The table of values added to the offer and subtracted from the bid to establish GEMX's maximum Opening Quote Range.

– Non-Penny Issues:

Price low end of range	Price high end of range	Acceptable range (highest bid – X or lowest ask + X)	Range Multiplier for options that expire >9 months away
\$0.00	\$1.00	\$0.10	1.5X
\$1.01	\$2.00	\$0.15	1.5X

Price low end of range	Price high end of range	Acceptable range (highest bid – X or lowest ask + X)	Range Multiplier for options that expire >9 months away
\$2.01	\$3.00	\$0.20	1.5X
\$3.01	\$5.00	\$0.30	1.5X
\$5.01	\$7.00	\$0.40	1.5X
\$7.01	\$10.00	\$0.50	1.5X
\$10.01	\$20.00	\$0.60	1.5X
\$20.01	\$30.00	\$0.80	1.5X
\$30.01	\$40.00	\$1.00	1.5X
\$40.01	+	\$1.50	1.5X

– Standard Penny Issues (excluding SPY/IWM/QQQ):

Price low end of range	Price high end of range	Acceptable range (highest bid – X or lowest ask + X)	Acceptable Range for options that expire >9 months away
\$0.00	\$1.00	\$0.05	\$0.10
\$1.01	\$2.00	\$0.05	\$0.14
\$2.01	\$3.00	\$0.07	\$0.18
\$3.01	\$5.00	\$0.10	\$0.40
\$5.01	\$7.00	\$0.15	\$0.50
\$7.01	\$10.00	\$0.20	\$0.60
\$10.01	\$15.00	\$0.30	\$0.75
\$15.01	\$20.00	\$0.40	\$0.90
\$20.01	\$30.00	\$0.60	\$1.20
\$30.01	\$40.00	\$0.80	\$1.50
\$40.01	+	\$1.00	\$2.25

– Special Penny Issues (SPY/IWM/QQQ)

Price low end of range	Price high end of range	Acceptable range (highest bid – X or lowest ask + X)	Range Multiplier for options that expire >9 months away
\$0.00	\$0.40	\$0.03	2.0X
\$0.41	\$1.00	\$0.05	2.0X
\$1.01	\$2.00	\$0.06	2.0X
\$2.01	\$3.00	\$0.07	2.0X
\$3.01	\$5.00	\$0.09	2.0X
\$5.01	\$7.00	\$0.12	2.0X
\$7.01	\$10.00	\$0.20	2.0X
\$10.01	\$15.00	\$0.30	1.5X
\$15.01	\$20.00	\$0.40	1.5X
\$20.01	\$30.00	\$0.50	1.5X
\$30.01	\$40.00	\$0.60	1.5X
\$40.01	+	\$0.80	1.5X

- **Imbalance Timer – 250 milliseconds** – Amount of time the system may wait before opening an option with an imbalance after broadcasting an Imbalance Message.
- **Number of Imbalance Process Iterations before an Opening with an Imbalance** – 4 iterations – Number of times the system will repeat the imbalance process before opening with a remaining imbalance.
- **Opening Order Cancel Timer – 30 seconds** – Period of time after the primary market underlying has opened and GEMX has not initiated an Opening Cross, at which all non-GTC orders submitted over FIX and OTTO in the affected option will be cancelled back to the sending firm. This feature is optional to participants and is engaged at the firm mnemonic level Section 8(k).

3. Routing

- **Order Exposure Period – 200 milliseconds** – The amount of time the system allows participants to interact with interest which triggered an Order Exposure Alert. *Options 5, Section 4*
- **Route Timer – 200 milliseconds** – The amount of time the system will allow participants to interact with a FIND or SRCH order before the order is routed after the opening or re-routed to an away market. This timer runs concurrently with the Order Exposure Period. *Options 5, Section 4*
- **Opening Route Timer – 250 ms** – Amount of time the system waits before routing to an away market as part of the opening process.

4. ACCEPTABLE TRADE RANGE

- **Max number of Acceptable Trade Range 5 iterations** – Number of iterations that ATR may occur before an aggressively priced order or quote will be canceled back to the sending participant.
- **Acceptable Trade Range (ATR) Refresh Period** – 200 milliseconds – Amount of time an order or quote will be posted at the boundary price of an ATR to allow the market to refresh before continuing to execute at more aggressive prices.
- **Acceptable Trade Range (ATR)** – Acceptable Trade Range boundaries limiting the range of prices incoming Simple Orders and quotes (except for All-or-None Orders) will be allowed to execute.

Non-Penny Issues (S)

Price low end of range	Price high end of range	Acceptable Range from Reference Price	Leaps ATR
\$0.00	\$1.00	\$0.10	\$0.20
\$1.01	\$2.00	\$0.15	\$0.25
\$2.01	\$3.00	\$0.20	\$0.30
\$3.01	\$5.00	\$0.30	\$0.45
\$5.01	\$7.00	\$0.40	\$0.60
\$7.01	\$10.00	\$0.50	\$0.75
\$10.01	\$15.00	\$0.60	\$0.90
\$15.01	\$20.00	\$0.60	\$0.90
\$20.01	\$30.00	\$0.80	\$1.20
\$30.01	+	\$1.00	\$1.50

Standard-Penny Issues (P)

Price low end of range	Price high end of range	Acceptable Range from Reference Price	Leaps ATR
\$0.00	\$1.00	\$0.07	\$0.14
\$1.01	\$2.00	\$0.10	\$0.20

Standard-Penny Issues (P)

Price low end of range	Price high end of range	Acceptable Range from Reference Price	Leaps ATR
\$2.01	\$3.00	\$0.15	\$0.30
\$3.01	\$5.00	\$0.20	\$0.40
\$5.01	\$7.00	\$0.25	\$0.50
\$7.01	\$10.00	\$0.30	\$0.60
\$10.01	\$15.00	\$0.50	\$0.75
\$15.01	\$20.00	\$0.60	\$0.90
\$20.01	\$30.00	\$0.80	\$1.20
\$30.01	+	\$1.00	\$1.50

Special-Penny Issues (E) SPY/IWM/QQQ

Price low end of range	Price high end of range	Acceptable Range from Reference Price	Leaps ATR
\$0.00	\$1.00	\$0.05	\$0.10
\$1.01	\$2.00	\$0.07	\$0.41
\$2.01	\$3.00	\$0.07	\$0.14
\$3.01	\$5.00	\$0.10	\$0.20
\$5.01	\$7.00	\$0.15	\$0.30
\$7.01	\$10.00	\$0.20	\$0.40
\$10.01	\$15.00	\$0.30	\$0.45
\$15.01	\$20.00	\$0.40	\$0.60
\$20.01	\$30.00	\$0.50	\$0.75
\$30.01	\$40.00	\$0.60	\$0.90
\$40.01	+	\$0.80	\$1.20

5. Risk Protection Thresholds

- **Limit Order Price protection:** Reject simple orders priced through the contra-side BBO (NBBO and internal market BBO) by the greater to absolute value of percentages configured below based on the option bid price.

LOPP Option contra Side BBO**Configurations**

<= 1.00	Absolute: 0.05 Percentage: 100%
> 1.00	Absolute: 0.05 Percentage: 50%

- **Market Order Cancel Timer** -4 Seconds –Participants can designate that their Market Orders not executed after this pre-established period of time to be cancelled, once an option series has opened for trading.
- **Market Order Spread Protection** - \$5.00 – Maximum bid/ask differential permissible for a Market Order to be accepted by the trading system; if the bid/ask differential is wider than \$5.00, a Market Order submitted into the system will be rejected. All symbols are configured at 5.00, with the following exceptions:

Symbol	Width
AZO	\$20.00
BIO	\$20.00
BKNG	\$22.00

Symbol	Width
BLK	\$20.00
CHE	\$20.00
CHTR	\$20.00
CMG	\$20.00
EQIX	\$20.00
ISRG	\$20.00
LMT	\$20.00
MELI	\$20.00
MKL	\$22.00
MTD	\$20.00
NDX	\$100.00
NOC	\$20.00
ORLY	\$20.00
REGN	\$20.00
ROP	\$20.00
SIVB	\$20.00
TDG	\$20.00
TSLA	\$20.00
Y	\$20.00

6. AUCTIONS

- **Auction Timers** – Below are the auction timer configurations for GEMX:

Auction Type	Duration
Facilitation	100 milliseconds
PIM	100 milliseconds
Solicitation	100 milliseconds
Block	100 milliseconds

7. Message Traffic Mitigation

- GEMX shall disseminate an updated bid and offer price together with the associated size to OPRA when the bid or offer price changes, the quantity decreases or the quantity increases by an amount greater than or equal to 3%. *Options 3, Section 26*

8. Market Wide Risk Protection

The system will maintain separate counts over rolling time periods specified by the member for each count of:

1. The total number of orders entered into regular order book.
2. The total number of contracts traded in regular orders.

If the member exceeds any threshold that they have set, the system will automatically reject all subsequent incoming orders entered by the member across GEMX and ISE. (KillSwitch). The time period must be set for a minimum of one second.

For members that do not specify values, the default values will be utilized. The default values are as per the below table:

Threshold	Simple instrument
Max order Count	20,000
Max Order Count Timer	1 second
Max Order Count Action	KillSwitch
Max Trade Volume	100,000
Max trade Volume Timer	1 second
Max Trade Volume Action	KillSwitch